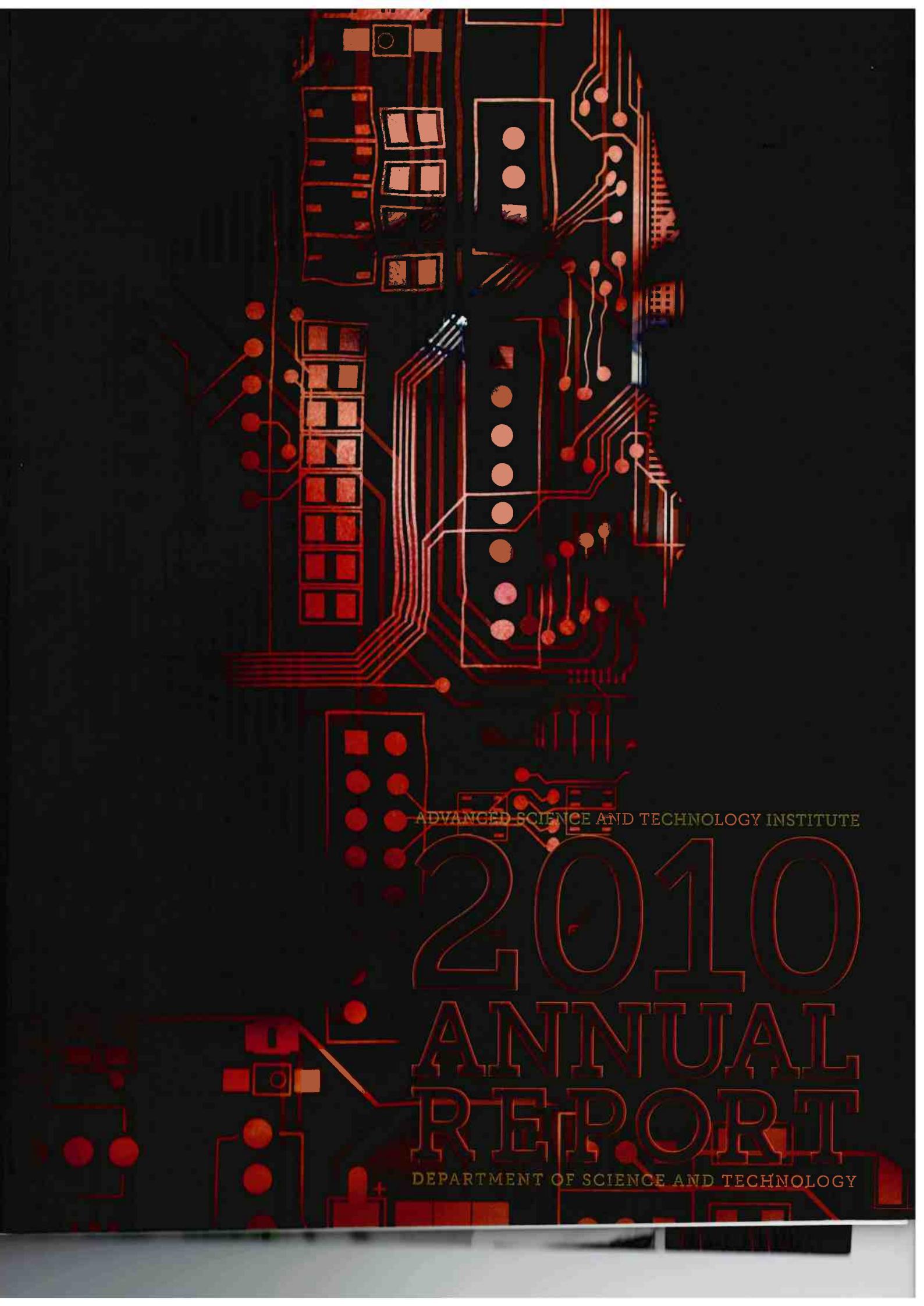




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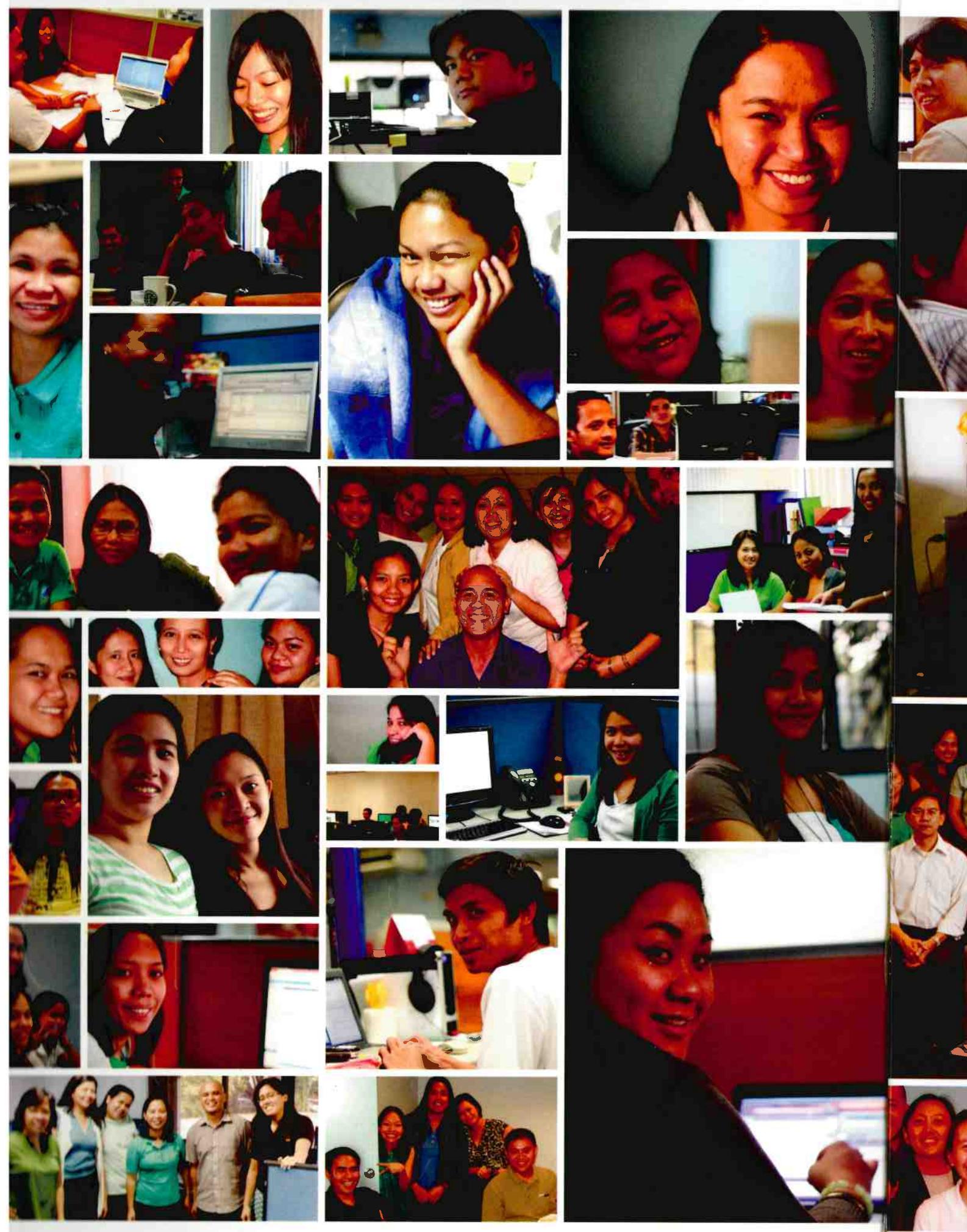




ADVANCED SCIENCE AND TECHNOLOGY INSTITUTE

# 2010 ANNUAL REPORT

DEPARTMENT OF SCIENCE AND TECHNOLOGY





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DEPARTMENT OF SCIENCE AND TECHNOLOGY



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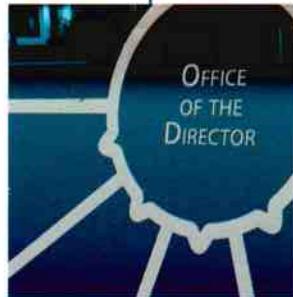
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## ORGANIZATIONAL STRUCTURE

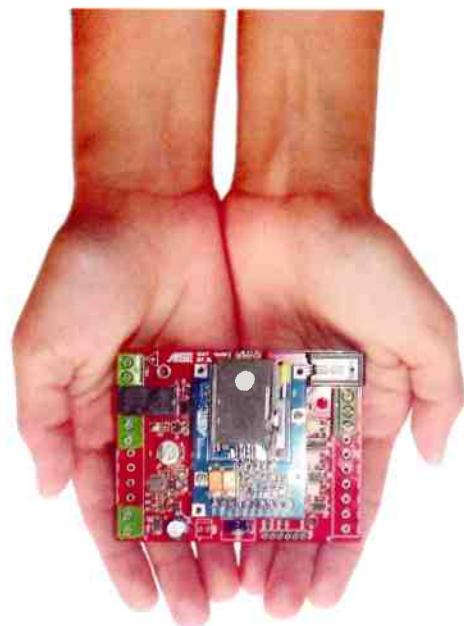
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## WE CREATE

ASTI undertakes research and development to strengthen and modernize science and technology infrastructure in the country



## WE INNOVATE

ASTI develops simple yet cost-effective tools  
accessible for the local community

Low-cost system solutions and instrumentation in monitoring real-time weather disturbances - (from left to right) Automated Weather Station (AWS), Water Level Monitoring Station (WLMS), and Automated Rain Gauge (ARG).



## WE COLLABORATE

ASTI forges synergy of expertise among its partners in achieving access to technology for the people who need them.



## WE EDUCATE

ASTI continuously aspires to become an intellectual asset to the Philippine community by updating technical competencies through **advanced** learning.

# vision

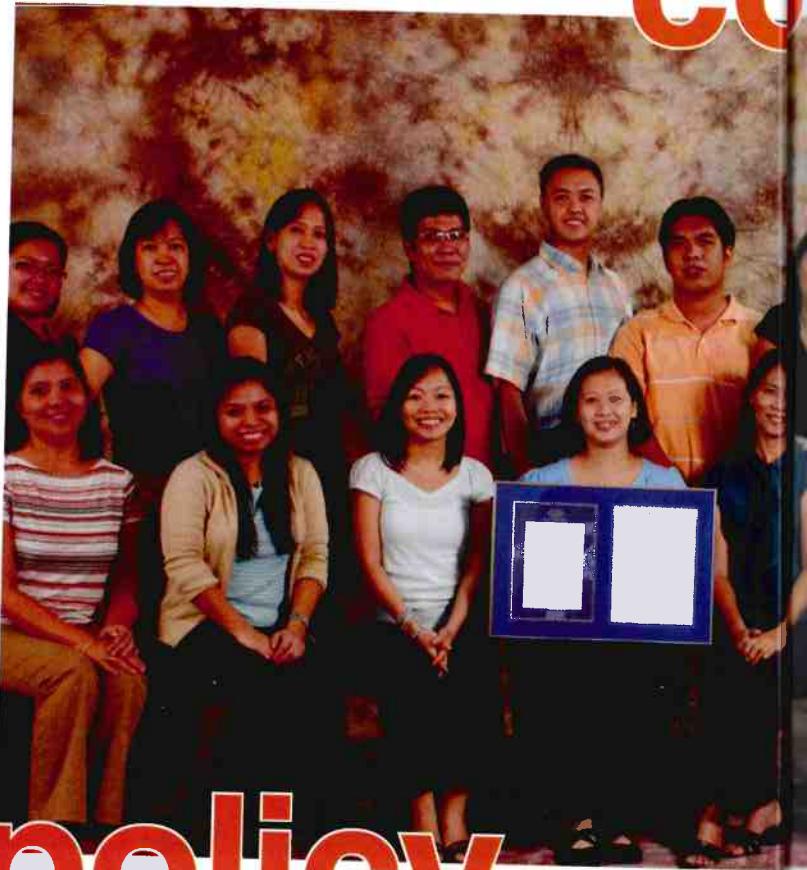
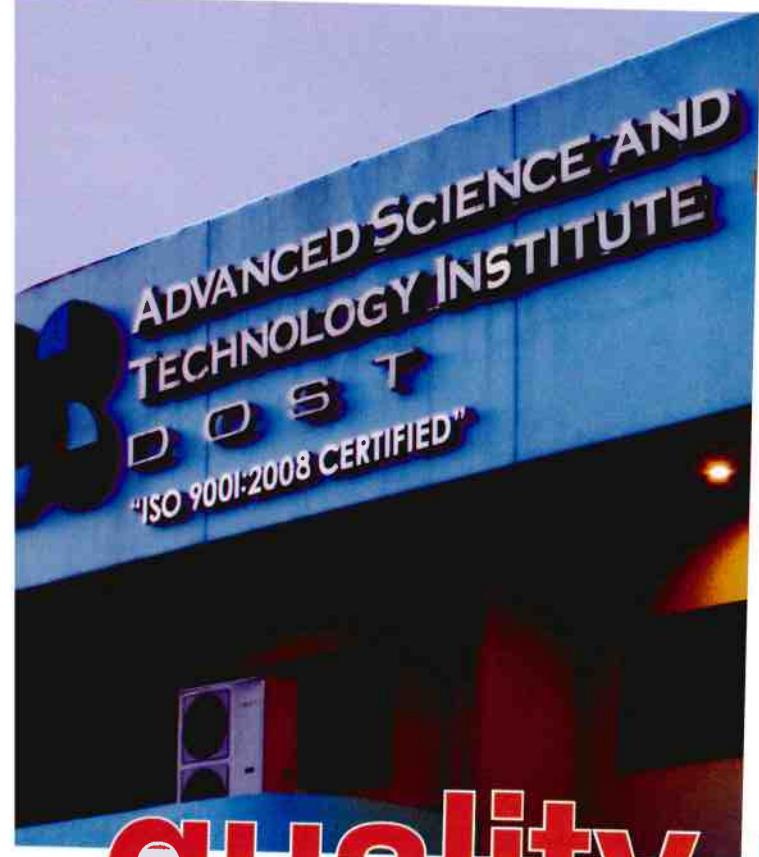


The Department of Science and Technology (DOST)  
- Advanced Science and Technology Institute (ASTI)  
shall be among the leading R&D centers in ICT and  
Electronics within the South-East Asian region.

We are committed to the development of the Filipino society and the Philippines as a nation. We shall contribute to the attainment of national development priorities and the growth of Philippine enterprises by providing innovative solutions using ICT and electronics technologies.



# mission

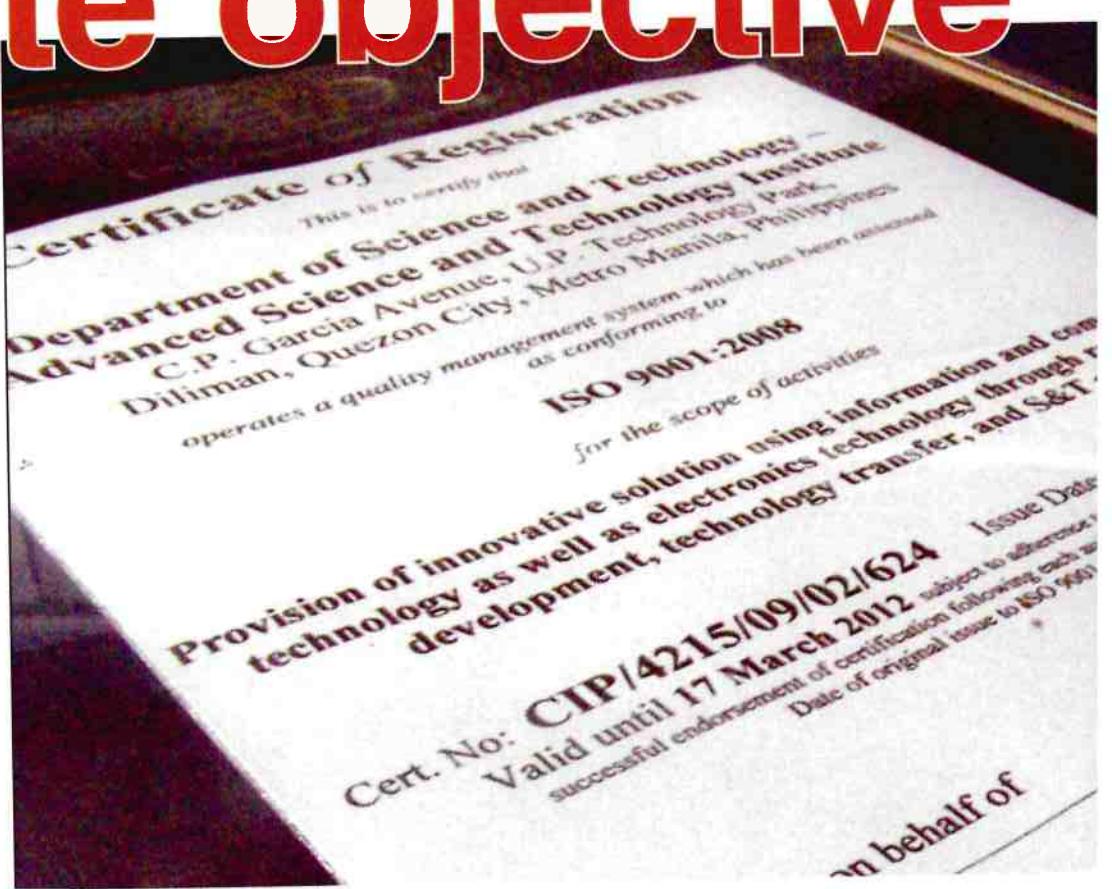


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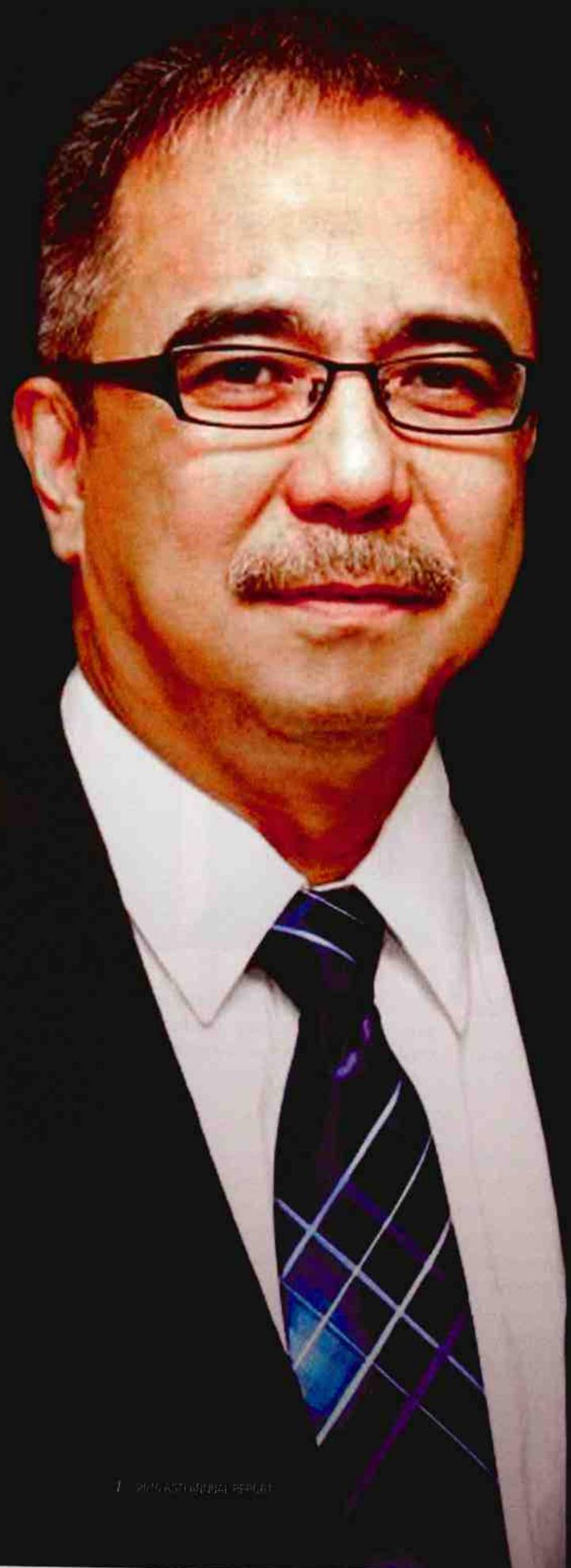
# quality policy

We are committed to provide innovative solutions using Information and Communications Technology, as well as Electronics Technology to both the government and the private sectors with the highest standards of quality and reliability, within our capabilities and resources, according to customer and all applicable regulatory and statutory requirements, and to continually improve the effectiveness of our Quality Management System at all times, in order to meet customer satisfaction.

# Corporate objective



The DOST-ASTI is committed to meeting its Major Final Output targets and delivering quality products and services that meet or exceed customer requirements and expectations.



PHOTOGRAPH BY MICHAEL REIFEL

The Advanced Science and Technology Institute performed well this year putting in the hard work and creativity to try to achieve its potential for innovation and nationwide scale up of its products. These are important steps to push local innovation in solving local development needs. These also showcased the ingenuity of Filipinos in technology design and development.

ASTI implemented research projects and collaborations that demonstrate its commitment to produce products, processes, and services that have significant socio-economic impact. These include technology based solutions that support disaster risk early warning systems, education, and biotechnology. Among others, in the process ASTI earned a number of awards and recognitions.

ASTI also achieved ISO 9001:2008 certification which attests its commitment to meet and deliver on its clients' demands for quality services.

ASTI is in a strong position to continue developing products, processes, and services that can improve the lives of our Filipino people. It also has a unique opportunity to play a role in sustainable and inclusive industrial development through ICT and Electronics R&D.

I look forward that ASTI will build on its accomplishments this year and we can expect another year of improved performance and service to the Filipino nation.



MARIO G. MONTEJO  
SECRETARY, DEPARTMENT OF SCIENCE AND TECHNOLOGY



Amidst the political transition this year, ASTI embraced positive changes and continued to move on new challenges. Out of 22 projects of the Agency, eight (8) were successfully accomplished and additional four (4) were initiated this year. Driven by the vision of Secretary Mario G. Montejano for the DOST, we took on new projects in pursuit of this vision to harness local innovation capability. It was a challenge we welcomed because we share the same conviction that, given the right push and support, we have the capacity to innovate and confidence that locally-developed products and services can compete globally.

We are proud that ASTI received four (4) distinctive awards and citations this year. These are not only a recognition of what we do, but more importantly, push us to perform even better. It also shows our commitment to contribute to the attainment of national development priorities towards the growth of Philippine enterprises, particularly in the ICT and Electronics industry. Indeed, it has been a busy year for the staff. This being said, it became an opportunity to learn and improve, a striking example of which is when ASTI was tapped for technical work in support of the first automated national and local elections.

This year, ASTI was also conferred a new version of ISO certification, signifying the successful transition of the Agency's QMS from ISO 9001:2000 to 2008. This reaffirms our commitment in providing quality products and services, as well as meeting international quality standards. For us, this also reinforces the attainment of our organisational performance objectives and MFO targets.

We at ASTI remain focused on our vision to be among the leading R&D centers in ICT and Electronics within the Southeast Asian Region. It is this vision that will continue to give us inspiration and direction in the challenging years ahead.



DENIS F. VILLORENTE  
DIRECTOR, ADVANCED SCIENCE AND TECHNOLOGY INSTITUTE

**5** **LINKAGES**

with International institutions and organizations

**9** **AGREEMENTS**

under Technology Transfer

**12** **TRAININGS**

for the year, all with a "very satisfactory" rating

**22** **PROJECTS**

Implemented

**352** **CLIENTS**

under Technology Commercialization

**10 647** **CLIENTS**

under Technology Diffusion

**105 345** **INCOME**

under Technology Commercialization, in PhP

**977 762** **INCOME**

under Trainings, in PhP

# Highlights

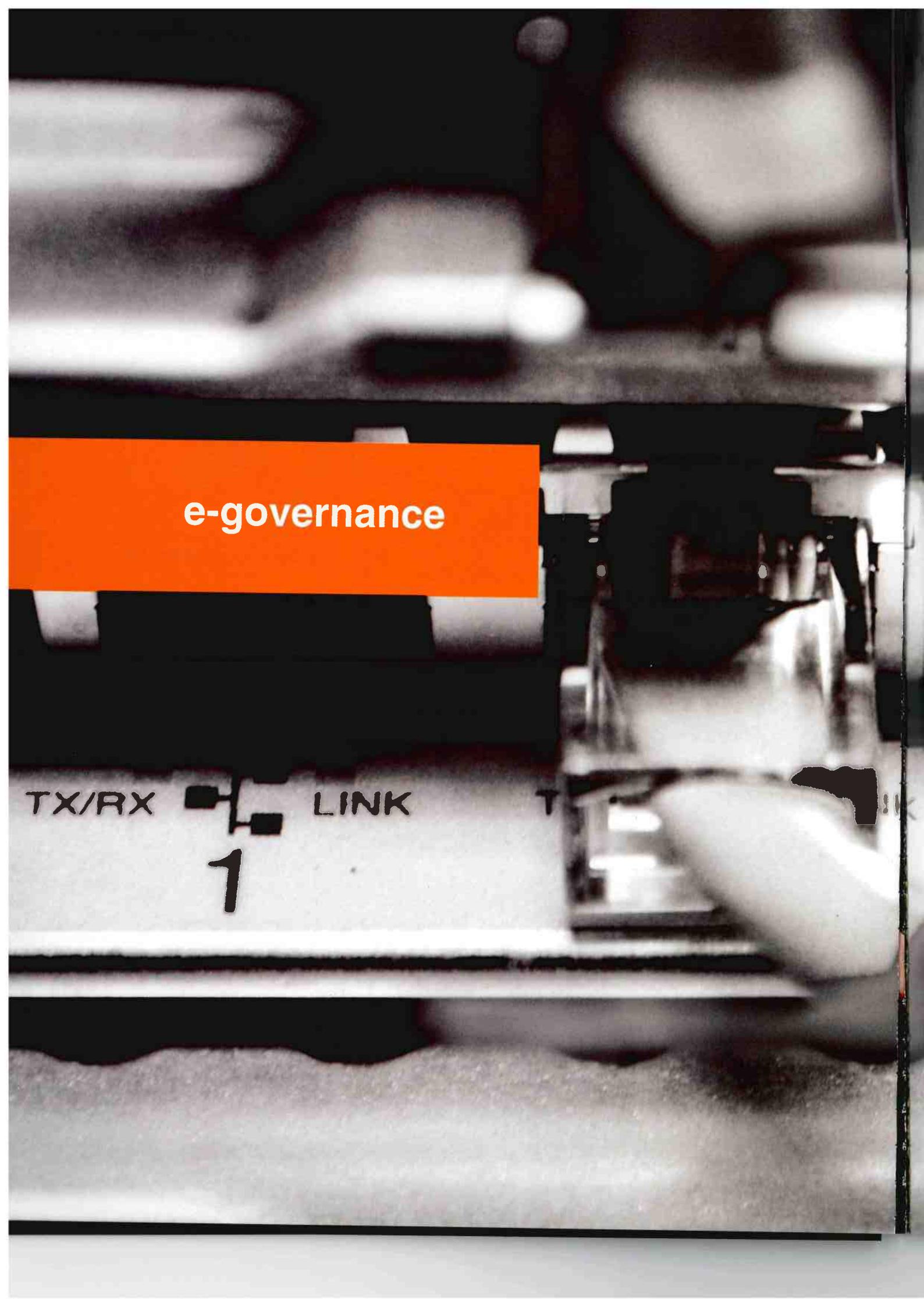
DOST-ASTI's accomplishments in 2010 comprised programs, projects, and activities that produced the Agency's three (3) Major Final Outputs (MFOs): 1) Research and Development (R&D); 2) Technology Transfer Services; and 3) Science and Technology (S&T) Services.

On the attainment of MFO 1 (R&D), 22 projects were implemented by the Agency, which continued with the previous year's thematic areas, namely, e-GOVERNANCE, eDUCATION, eNVIRO NMENT and eENTERPRISE DEVELOPMENT.

MFO 2 (Technology Transfer Services) was divided into technology commercialization and diffusion. Within the year, the former has served 352 clients from various government agencies, academic institutions, and private individuals and companies, while the latter was able to share the DOST-ASTI's research outputs with 10,647 clients from the government, industry, and academe. The Agency's technology commercialization efforts, including the commercialization of DOST-ASTI ICT and electronic products, e.g., GSM Data Terminal, Digital Multimeter, Digital Wood Moisture Meter and Bayanihan Linux, generated a total income of P105,345.00. Further, nine (9) technology transfer agreements covering the commercialization of GSM data terminal and DOST-ASTI Infosys were signed.

Finally, in delivering the MFO 3 (S&T Services), the Agency continued to maintain PREGINET services, as well as the DNS Administration (registry for .gov.ph), which was able to process 426 online transactions and maintain a total of 1,981 activated domains. Moreover, the Agency conducted a total of 12 trainings with 426 trainees. These trainings earned a "very satisfactory" rating and generated a total annual gross income of P977,762.55.

Due to its services, the DOST-ASTI successfully maintained its linkages with five (5) international institutions/organizations: 1) Ministry of Agriculture, Forestry and Fisheries Information Network (MAFFIN), Japan; 2) Asia Pacific Advanced Network (APAN); 3) Keio University, Japan; 4) Trans Eurasia Information Network 23 (TEIN3); and 5) Japan Aerospace Exploration Agency (JAXA). Local linkages of the Agency, most of which were connected to PREGINET, include the UPV Miagao, UPV Cebu, Bases Conversion and Development Authority, Department of Foreign Affairs, eTESDA, Commission on Appointments, Professional Regulation Commission and National Historical Institute.



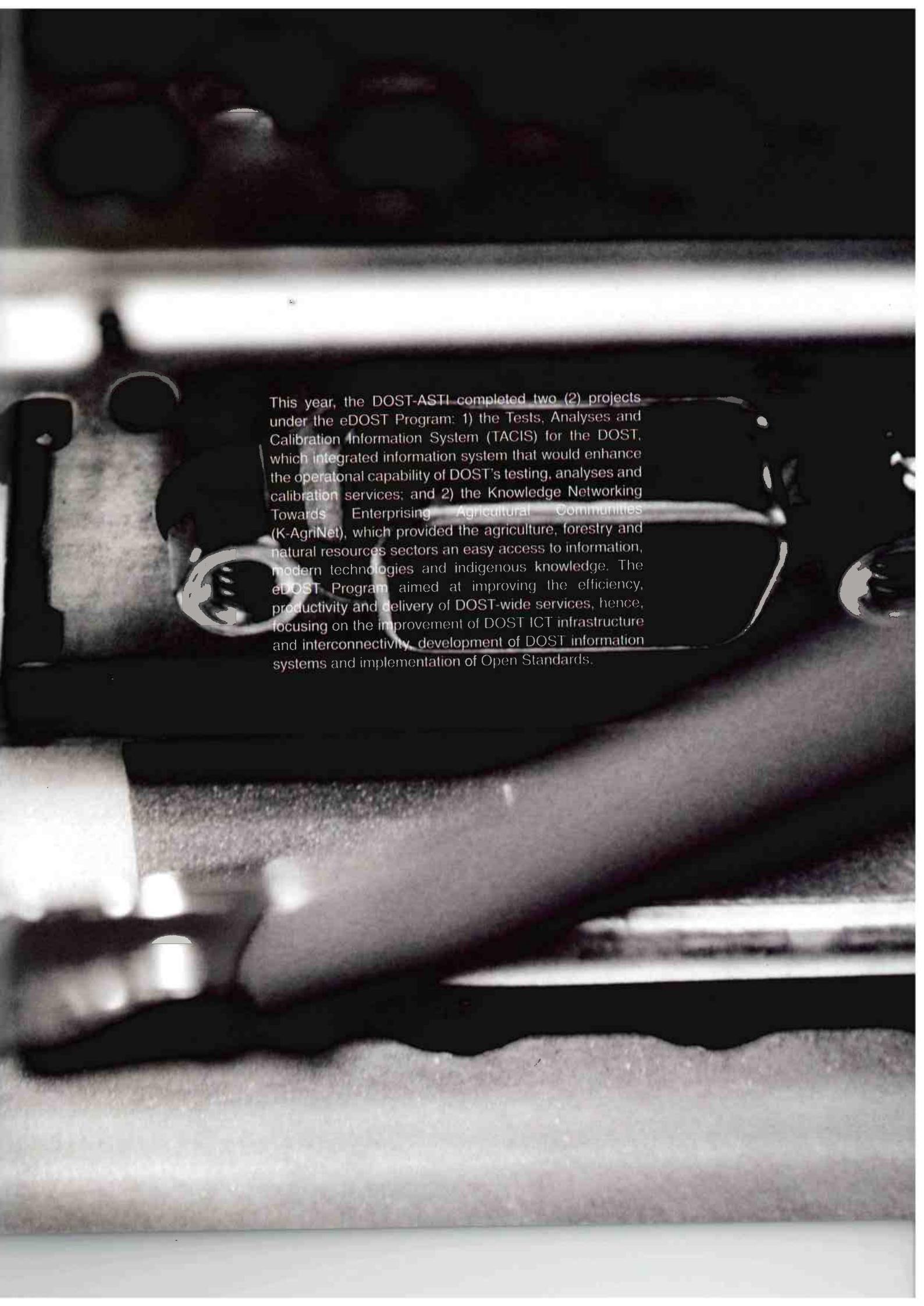
e-governance

TX/RX

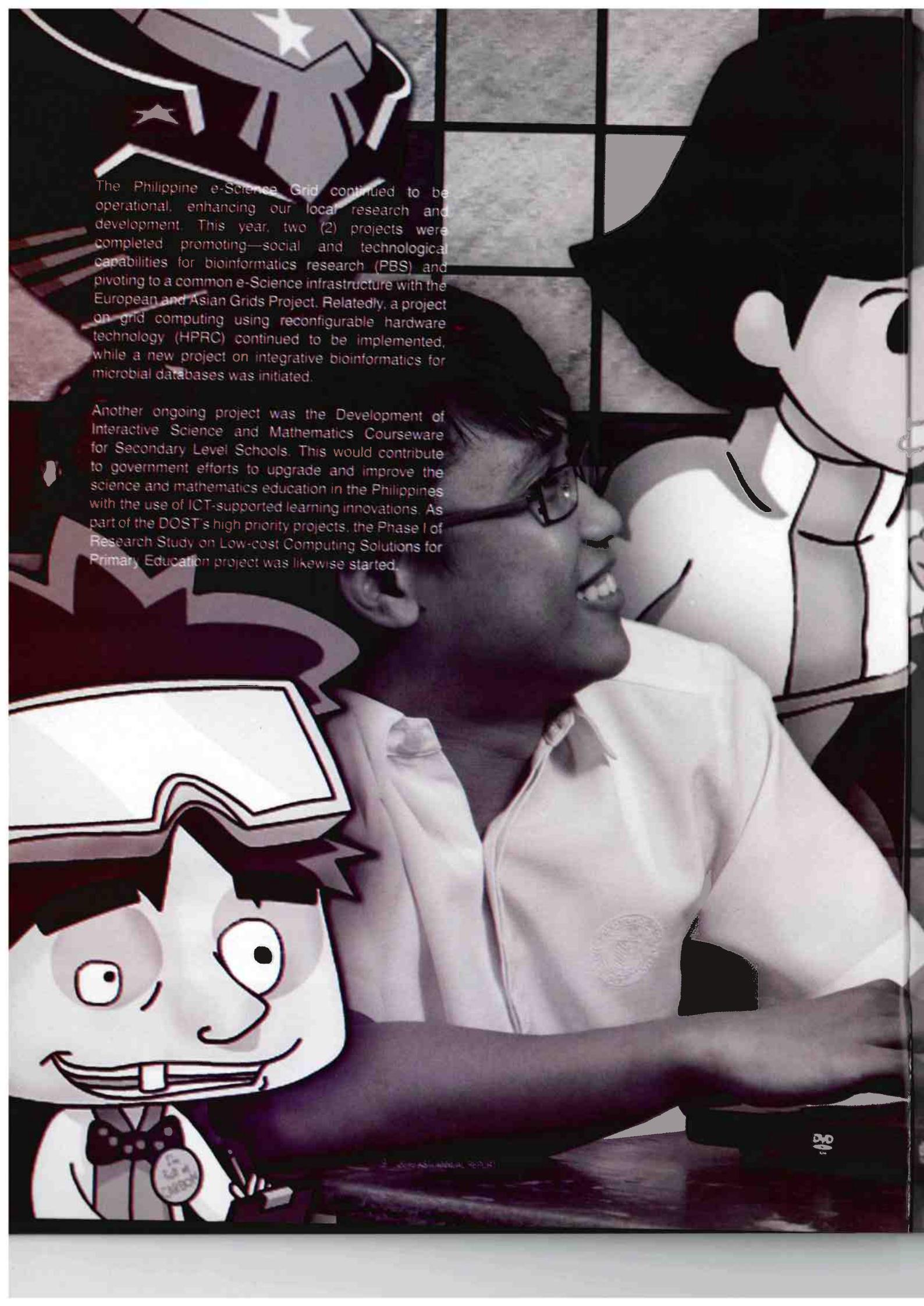


LINK

1

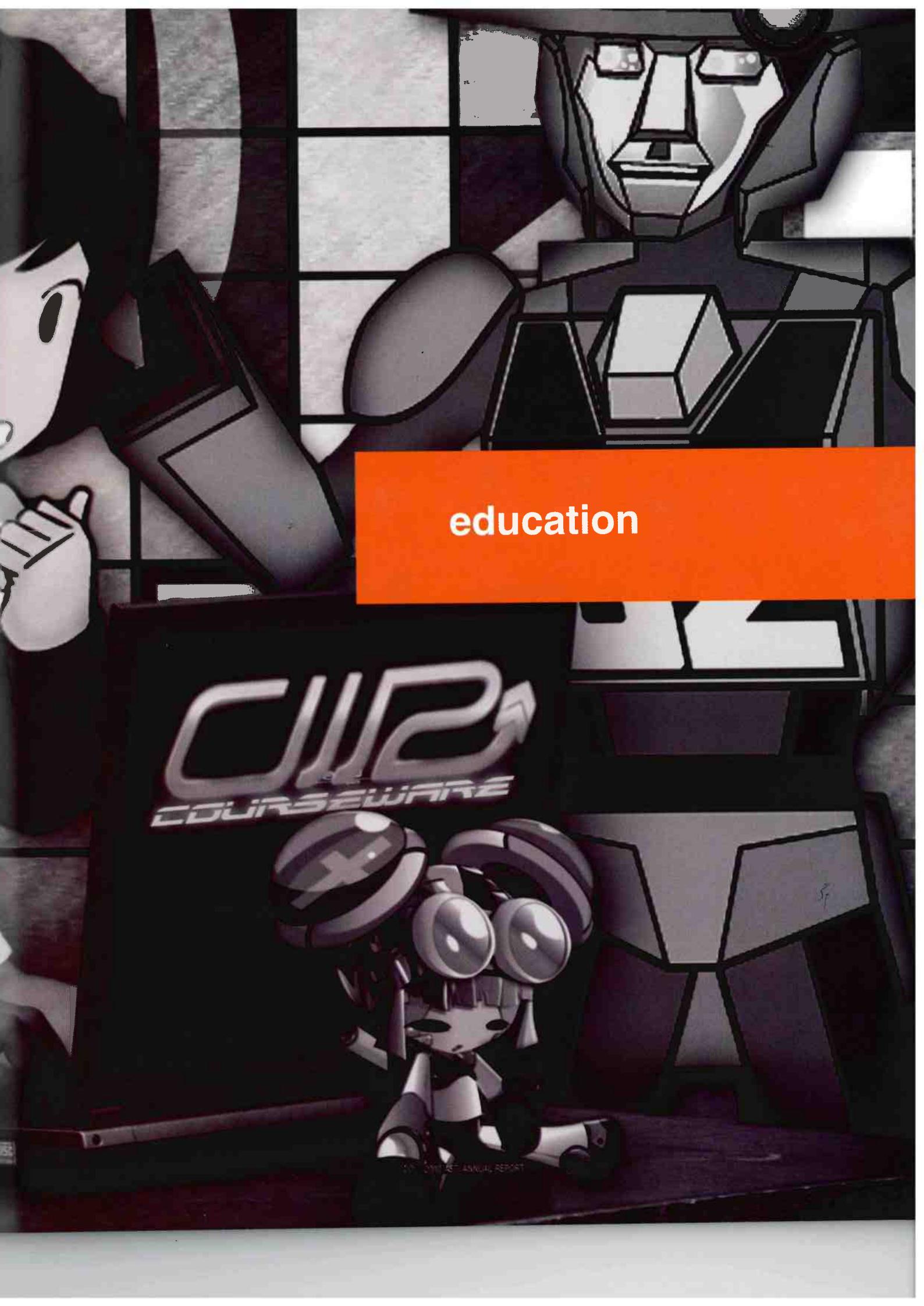


This year, the DOST-ASTI completed two (2) projects under the eDOST Program: 1) the Tests, Analyses and Calibration Information System (TACIS) for the DOST, which integrated information system that would enhance the operational capability of DOST's testing, analyses and calibration services; and 2) the Knowledge Networking Towards Enterprising Agricultural Communities (K-AgriNet), which provided the agriculture, forestry and natural resources sectors an easy access to information, modern technologies and indigenous knowledge. The eDOST Program aimed at improving the efficiency, productivity and delivery of DOST-wide services, hence, focusing on the improvement of DOST ICT infrastructure and interconnectivity, development of DOST information systems and implementation of Open Standards.



The Philippine e-Science Grid continued to be operational, enhancing our local research and development. This year, two (2) projects were completed, promoting—social and technological capabilities for bioinformatics research (PBS) and pivoting to a common e-Science infrastructure with the European and Asian Grids Project. Relatedly, a project on grid computing using reconfigurable hardware technology (HPRC) continued to be implemented, while a new project on integrative bioinformatics for microbial databases was initiated.

Another ongoing project was the Development of Interactive Science and Mathematics Courseware for Secondary Level Schools. This would contribute to government efforts to upgrade and improve the science and mathematics education in the Philippines with the use of ICT-supported learning innovations. As part of the DOST's high priority projects, the Phase I of Research Study on Low-cost Computing Solutions for Primary Education project was likewise started.



education

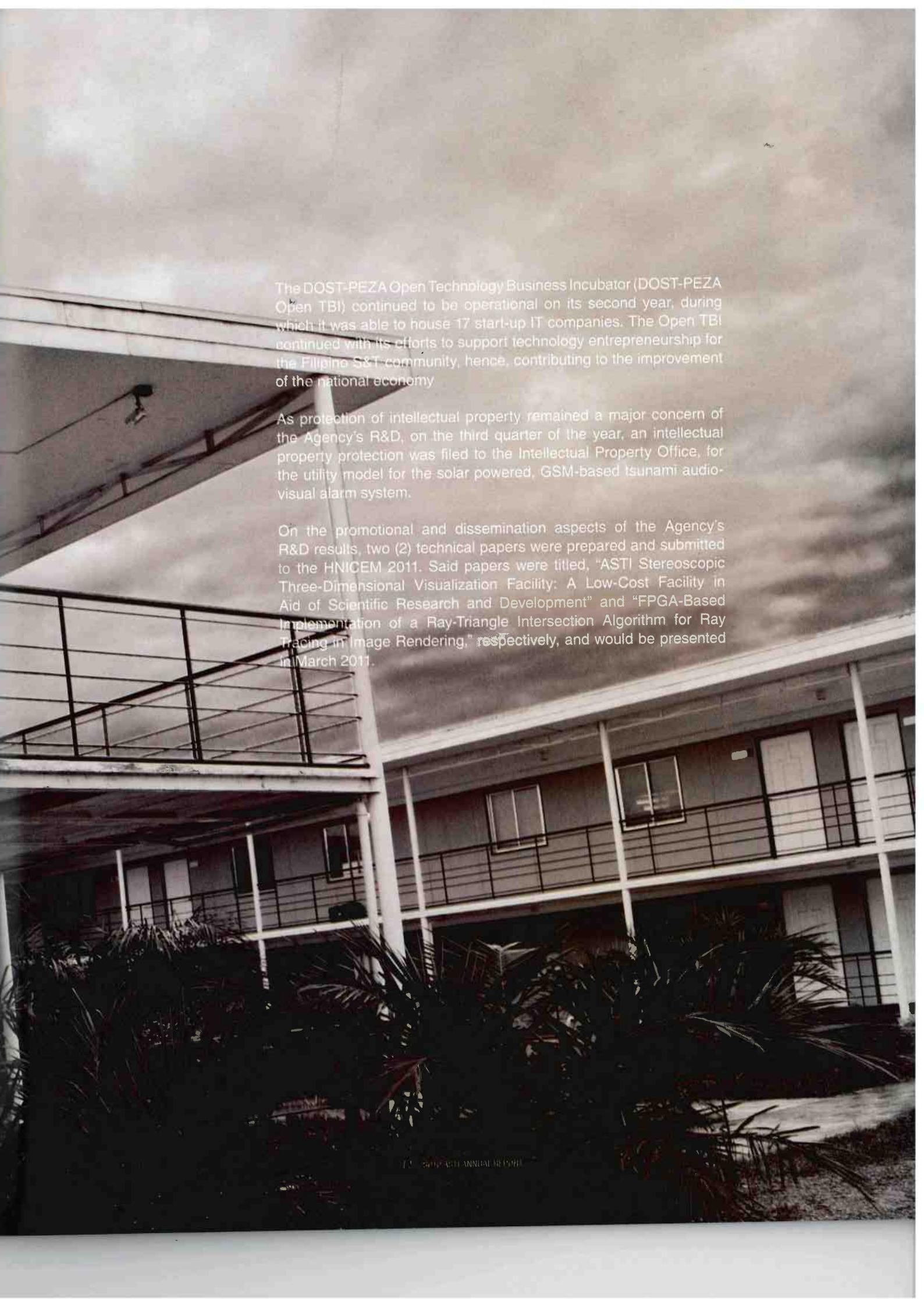
CLIP COURSEWARE



CLIP COURSEWARE ANNUAL REPORT



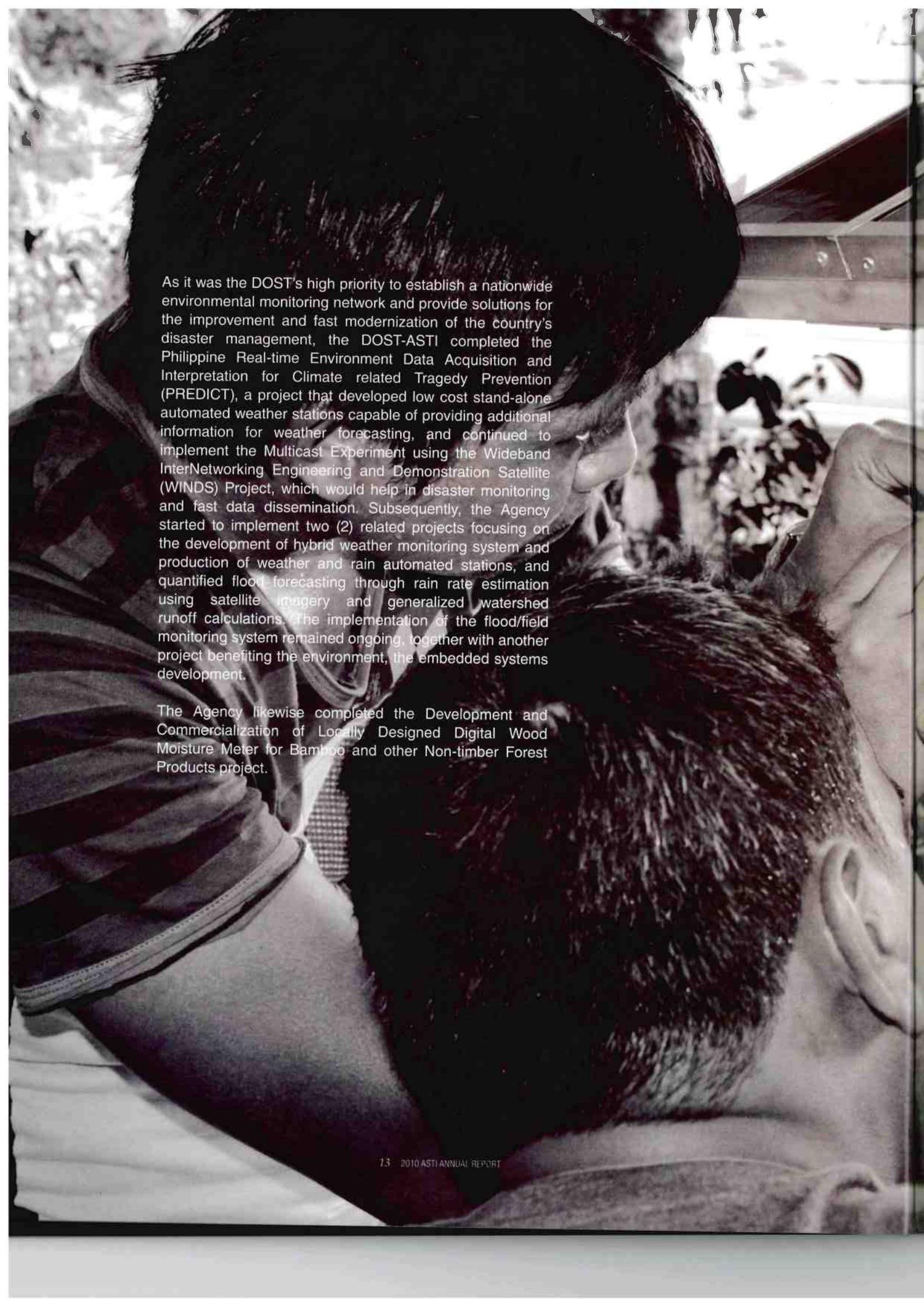
## enterprise development



The DOST-PEZA Open Technology Business Incubator (DOST-PEZA Open TBI) continued to be operational on its second year, during which it was able to house 17 start-up IT companies. The Open TBI continued with its efforts to support technology entrepreneurship for the Filipino S&T community, hence, contributing to the improvement of the national economy.

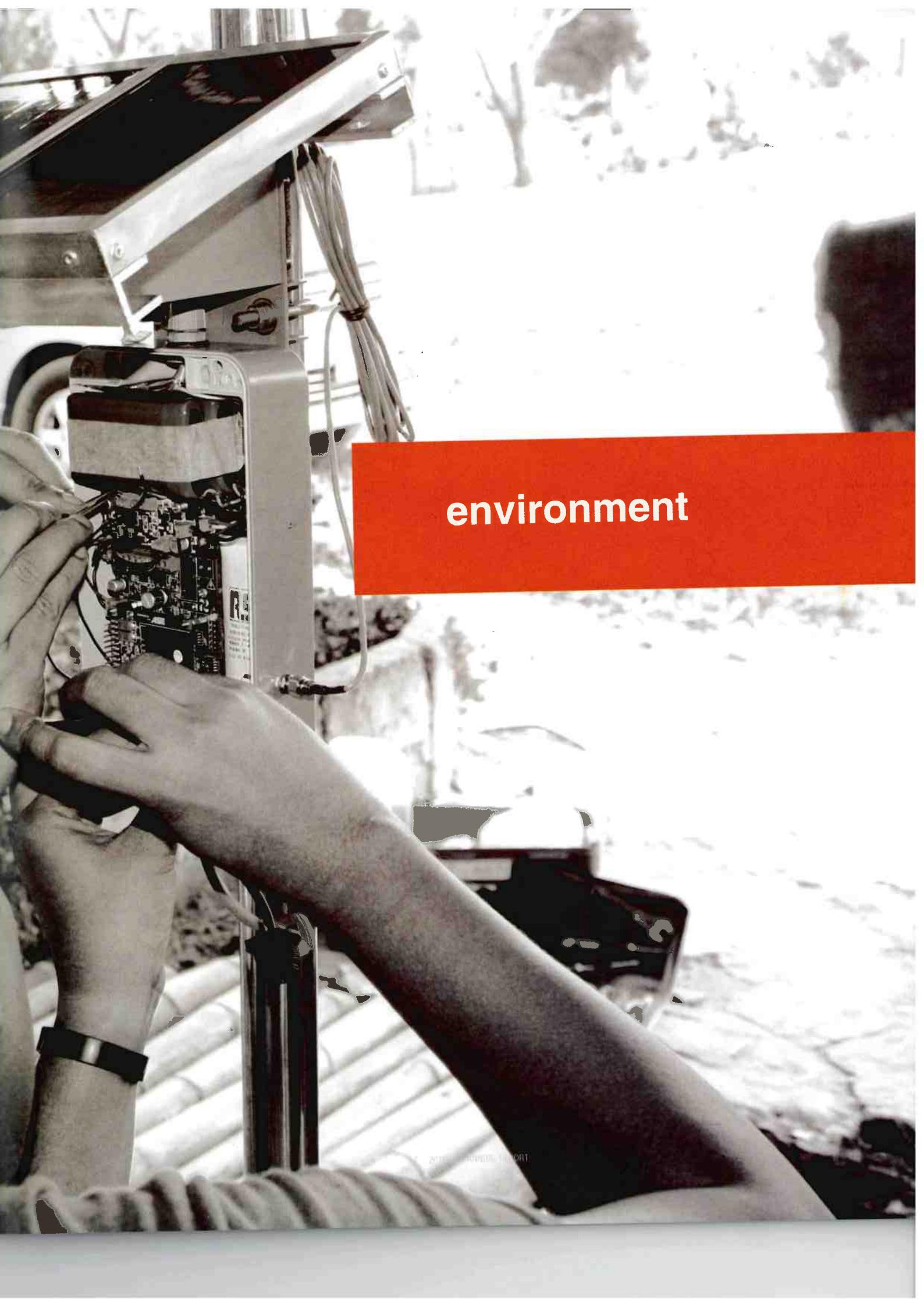
As protection of intellectual property remained a major concern of the Agency's R&D, on the third quarter of the year, an intellectual property protection was filed to the Intellectual Property Office, for the utility model for the solar powered, GSM-based tsunami audio-visual alarm system.

On the promotional and dissemination aspects of the Agency's R&D results, two (2) technical papers were prepared and submitted to the HNICEM 2011. Said papers were titled, "ASTI Stereoscopic Three-Dimensional Visualization Facility: A Low-Cost Facility in Aid of Scientific Research and Development" and "FPGA-Based Implementation of a Ray-Triangle Intersection Algorithm for Ray Tracing in Image Rendering," respectively, and would be presented in March 2011.

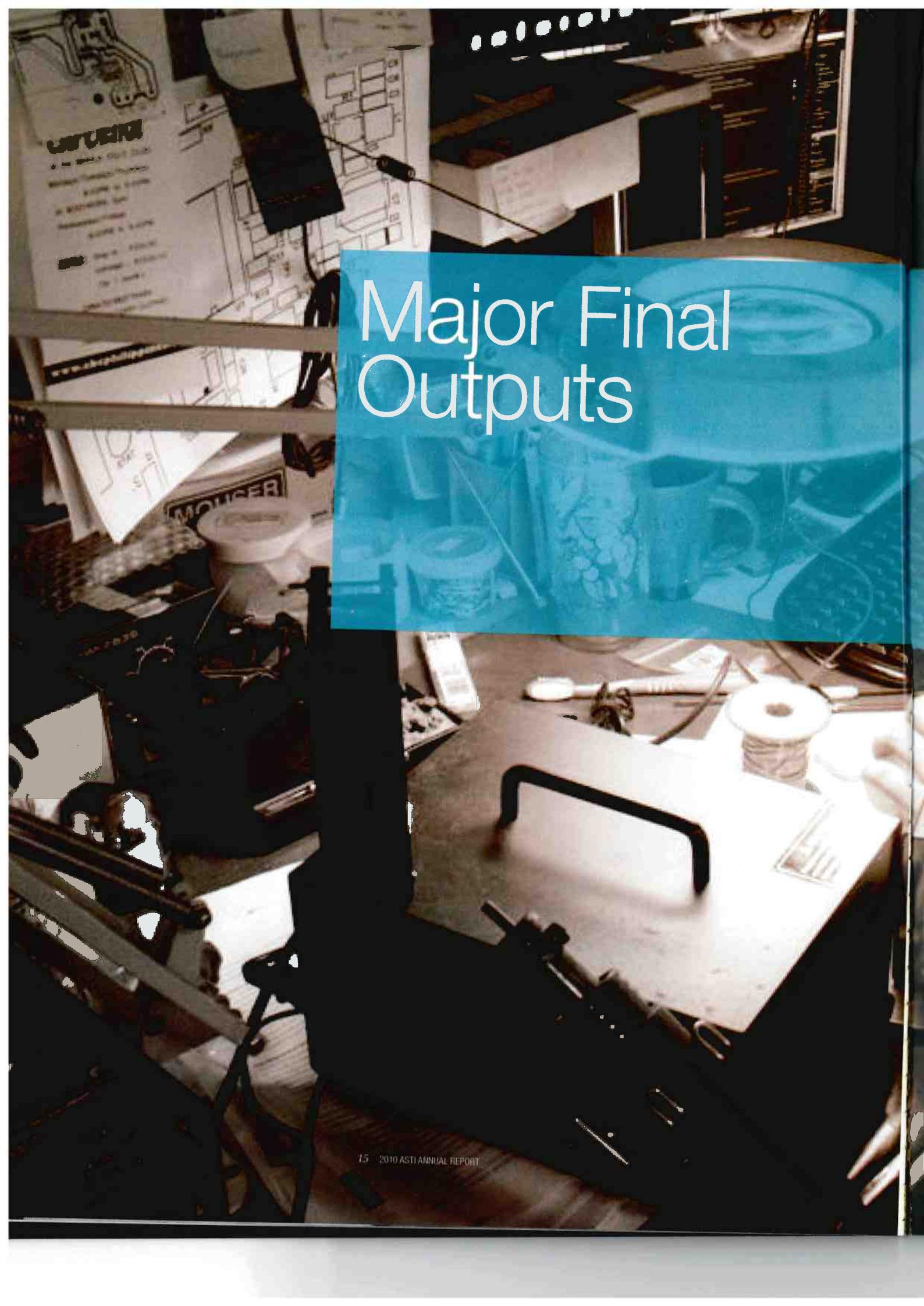


As it was the DOST's high priority to establish a nationwide environmental monitoring network and provide solutions for the improvement and fast modernization of the country's disaster management, the DOST-ASTI completed the Philippine Real-time Environment Data Acquisition and Interpretation for Climate related Tragedy Prevention (PREDICT), a project that developed low cost stand-alone automated weather stations capable of providing additional information for weather forecasting, and continued to implement the Multicast Experiment using the Wideband InterNetworking Engineering and Demonstration Satellite (WINDS) Project, which would help in disaster monitoring and fast data dissemination. Subsequently, the Agency started to implement two (2) related projects focusing on the development of hybrid weather monitoring system and production of weather and rain automated stations, and quantified flood forecasting through rain rate estimation using satellite imagery and generalized watershed runoff calculations. The implementation of the flood/field monitoring system remained ongoing, together with another project benefiting the environment, the embedded systems development.

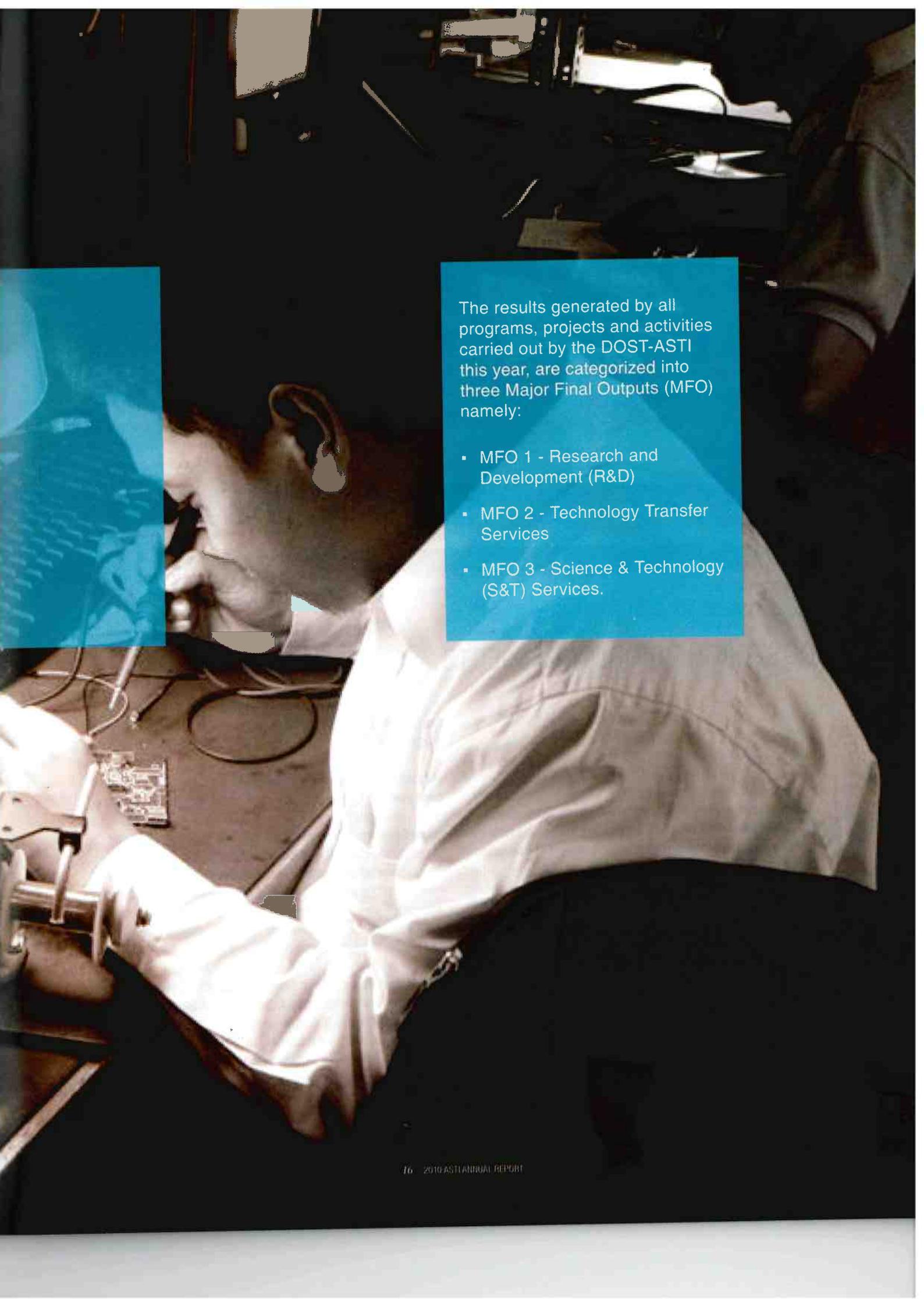
The Agency likewise completed the Development and Commercialization of Locally Designed Digital Wood Moisture Meter for Bamboo and other Non-timber Forest Products project.



# environment



# Major Final Outputs



The results generated by all programs, projects and activities carried out by the DOST-ASTI this year, are categorized into three Major Final Outputs (MFO) namely:

- MFO 1 - Research and Development (R&D)
- MFO 2 - Technology Transfer Services
- MFO 3 - Science & Technology (S&T) Services.



## MFO 1 Research & Development

The Agency has two (2) R&D programs namely, Information and Communications Technology (ICT) and Microelectronics and Embedded Systems. Under these programs, 22 projects were implemented this year and eventually came up with technologies, products, and solutions that address the needs of the industry, academe, and government sectors.

### DOST HIGH PRIORITY PROJECTS

#### Development of Hybrid Weather Monitoring System and Production of Weather and Rain Automated Stations, *New*

In cooperation with the DOST-Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), the DOST-ASTI was able to proceed with the implementation of this project, which aimed at preventing damages caused by strong typhoons and flooding, thru real-time monitoring of weather changes in specific localities. The project would deploy 80 AWS and 100 automated rain monitoring stations, particularly, in areas prone to typhoons and other weather related disasters. This would address the need for a low cost stand-alone system for disaster prevention and mitigation to enhance real-time monitoring of area-specific weather conditions in the country.

On its first quarter of implementation, the design for manufacturability of the main controller circuit board and remote power system for AWS and rain gauge units was accomplished. Further, designs of mechanical mountings

for solar bracket, as well as pole and rain gauge bracket were made.

Majority of the project activities would be undertaken next year, to include:

- full acquisition of hardware components
- production of AWS and rain gauge units
- complete development of system software
- deployment of AWS and rain gauges nationwide

#### Flood/Field Monitoring System (FMON), *On-going*

FMON is a project which aims to modernize the acquisition of agricultural information, necessary to enhance the growing of crops. It came up with a working prototype, equipped with infrared camera for field observation, and sensors to measure environmental parameters such as wind speed, soil moisture, leaf wetness, ground water-level and ultraviolet rays. The data from the FMON stations are acquired through an access point via WiFi



**connection**, stored in the server, and **subsequently** made available to the **users/researchers** via FMON **webpage**.

The project team has extended, within the year, the application of a real-time monitoring station from agriculture to disaster prevention and mitigation. With some modifications to the sensors and communication system, the FMON technology was retrofitted and used to rehabilitate the Effective Flood Control Operation System (EFCOS) being operated by the Metropolitan Manila Development Authority. The project accomplishments highlighted the successful installation and operation of the following:

- Three (3) units of the water level **monitoring apparatus** at the EFCOS stations in Sto. Niño, Rosario, **Napindan**
- Three (3) units of rain gauge at the **PAGASA Science Garden**, EFCOS Napindan station and Rosario **master** station

- Two (2) water level sensors in **Tumana bridge** and Wawa dam
- One (1) data server in Rosario master station
- Rain and water level **stations** along **Marikina** – Pasig River

Research Study on Low-cost Computing  
Solutions for Primary Education - Phase I, New

The **Research** Study on Low-cost Computing Solutions for Primary **Education** – Phase I **primarily** aims to study the feasibility of a **low-cost tablet computer/e-book** reader, as an **alternative** to printed **textbooks**, tailored, **especially**, for primary school **education**. **Specifically**, the phase I of the project would **evaluate existing and upcoming** similar **products**, taking into account the **hardware**, **software** tools and **content**. It would also adopt a **stakeholder approach** which could hold **consultative** dialogues with agencies **concerned**, including the **Department of**

Education, DOST-Science Education Institute (SEI) and local electronics designers and manufacturers. This would ensure that optimum design and identification of specifications for the learning tool, which is suitable for basic education, are obtained and the bill of materials, resulting in an affordable device.

The Tablet PC project seeks to contribute to the improvement of both the delivery of educational content in the primary level, as well as the overall quality of Philippine education. By utilizing a Tablet PC, which is one of the efficient and affordable innovations in ICT, students can adapt to new ways of learning in this information age.



WEATHER MONITORING SYSTEM DIAGRAM

Data collected by weather monitoring clusters are sent through a GSM wireless network where it is validated and processed by PAGASA. Real-time weather status, advisories and warning can then be disseminated to the public via the internet or through SMS.



#### Quantified Flood Forecasting Through Rain Rate Estimation Using Satellite Imagery and Generalized Watershed Runoff Calculations, *New*

The project is a collaboration among the University of the Philippines (UP) - National Institute of Geological Sciences (NIGS), DOST-PAGASA, and DOST-ASTI. It aims to provide more accurate flood forecasting for a better early warning system in the Philippines. The one-year project officially started on 25 November 2010 with UP NIGS as the lead proponent.

The DOST-ASTI is expected to provide access to its High Performance Computing (HPC) facility to run the rain rate software, as well as data storage and webhosting services for the project's website. With funding from the DOST-Philippine Council for Industry, Energy and Emerging Technology Research and Development, the agencies involved have already started the mobilization for the project.

#### Philippine Real-time Environment Data Acquisition and Interpretation for Climate related Tragedy Prevention (PREDICT), *Completed*

PREDICT, a collaborative project between DOST-ASTI and DOST-PAGASA, concluded in December 2010. The project developed and produced seven (7) low-cost stand-alone Automated Weather Stations (AWS), which are designed to collect the following environmental parameters for weather forecasting:

Model 1	Model 1
Air Temperature	Air Temperature
Humidity	Humidity
Water Level	Atmospheric Pressure
Rain Amount	Rainfall, Intensity, & Duration
Wind Speed and Direction	Wind Speed & Direction
Solar Radiation	
Solar Index	

The data collected from the AWS are transmitted to the main server through a global system for mobile communications (GSM) wireless network via short message service (SMS), for data interpretation and visualization.

Two (2) AWS were already installed in Sangleys Point, Cavite and Ambulong Batangas. The rest of the AWS units will be deployed and used by the DOST-PAGASA in strategic locations for the prevention and mitigation of the negative impact of weather-related disasters.



## ICT RESEARCH AND DEVELOPMENT PROGRAM

### THE PHILIPPINE E-SCIENCE GRID (PSCIGRID) PROGRAM

The PSciGrid is the Philippines' main national e-science Grid initiative. Having this infrastructure is important for the country because our S&T community needs to have a concerted effort towards fully harnessing ICT infrastructures for the benefit of our local research and development. Essentially, this enables our researchers to participate in cutting-edge collaborative scientific research that aims to solve global problems.

The projects under the Program are:

#### Project 1: Boosting Grid Computing Using Reconfigurable Hardware Technology (HPRC), *On-going*

In July 2010, the pilot PSciGrid, which combined the computing resources of the DOST-ASTI, the UP Computational Science Research Center and the Ateneo de Manila University - School of Science and Engineering, was launched.

At the end of the year, DOST-ASTI's HPC already comprised 51 computing nodes. Applications for bioinformatics, meteorology, seismology, and oceanography, among others, were installed in the facility, of which current users include DOST-PAGASA, DOST-Philippine Institute of Volcanology and Seismology (PHIVOLCS), UP Marine Science Institute (UP MSI), UP National Institute of Physics (UP NIP), UP Los Baños (UPLB) National Institute of Molecular Biology and Biotechnology (BIOTECH), UP National Institute of Geological Sciences (UP NIGS), International Rice Research Institute (IRRI) and Manila Observatory.

Computing applications running on Field Programmable Gate Array (FPGA) were likewise developed, including:

- Integrator for 3D graphics rendering
- Neural networks for bias modeling in flood forecasting

Further, through this project, the following collaborations were initiated: "Integrative Bioinformatics for Microbial

**Databases,"** in collaboration with UPLB BIOTECH; and **"Quantified Flood Forecasting through Rain Rate Estimation Using Satellite Imagery and Generalized Watershed Runoff Calculations,"** in collaboration with UP NIGS and DOST-PAGASA.

The **Implementation** of the project was **extended** until 30 June 2011.

#### Project 2: Boosting Social and Technological Capabilities for Bioinformatics Research (PBS), *Complete*

**Bioinformatics research** is one of the areas with a growing demand for high performance computing. The large and increasing size of Bioinformatics **databases**, such as GenBank, requires a corresponding increase in the amount of computational power to analyze huge data sets. The Banyuhay Cluster of the DOST-ASTI HPC facility was installed with **BioBoost**, which was developed by Progenig. **BioBoost** is a hardware accelerator especially designed for high performance computing to speed up the **computational** process.

The project aimed at enhancing the local availability of bioinformatics services to facilitate the rapid access of local scientists and **researchers** to these large bioinformatics **databases**. Developing the needed applications and making these locally **accessible** would help improve research outputs of local bioinformatics **experts**.

Through the project, the PSciGrid Portal was developed as a web interface that would enable a user-friendly way

to **access** the PSciGrid and the **DOST-ASTI** HPC facility. Also, a **Stereoscopic 3D Visualization Facility**, intended for simulation **activities** such as molecular interaction, was set up at the DOST-ASTI.

#### Integrative Bioinformatics for Microbial Databases, *New*

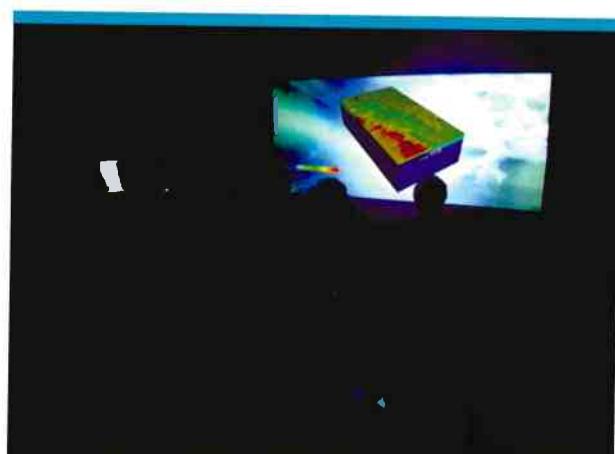
The UPLB BIOTECH and the DOST-ASTI collaborated on this one-year project, which started on 01 February 2010. It aims to integrate BIOTECH's bioinformatics workflow and **research** into a computing infrastructure. With BIOTECH as the lead proponent, the DOST funded the project through the DOST-Philippine Council for **Advanced** Science and **Technology** Research and Development.

In line with this, the DOST-ASTI, as a cooperating agency, provided the use of the Banyuhay Cluster in its HPC facility for the installation and integration to the PSciGrid portal of Autodock Vina, an open-source program that offers fast and accurate molecular docking and virtual screening dedicated for drug discovery. The DOST-ASTI further developed BIOTECH's Data **Warehouse** portal with the use of BioWarehouse, an open-source toolkit for constructing bioinformatics **database** warehouses. Said portal enables BIOTECH researchers to easily access **databases** such as GenBank, Uniprot, BioCyc, etc., which they use for their work. In 2011, the following activities shall be completed:

- operational Data Warehouse portal
- user training on accessing the Data Warehouse
- development of **research** paper on the UPLB-BIOTECH data warehouse

#### STEREOSCOPIC 3D VISUALIZATION FACILITY

Apologies using 3D glasses (left) to view a 3D image of a molecular interaction simulation (right)





## EDOST PROGRAM: INSTITUTIONALIZING ICT WITHIN THE DOST SYSTEM

To address the need to maximize the use of ICT to improve the efficiency, productivity, and collaboration among the internal operations and front-line public services of the DOST and its line agencies, three **interrelated** projects under the eDOST Program have continued to be implemented. These projects are:

### Project 1: Upgrading of DOST ICT Infrastructure and Interconnectivity Network (eDOST-INFRA), *On-going*

The eDOST-INFRA aims to provide adequate and reliable infrastructure and **interconnectivity** among DOST agencies, as well as its regional and provincial offices to improve operations and service delivery. Its main components are organization-wide upgrading of ICT **infrastructures** and internet connectivity and provision of trainings to DOST technical personnel.

This year, the project accomplished the following:

- extension of wireless **interconnectivity** of eight Provincial S&T Centers (PSTCs) and three Urban Science and Technology Centers
- plan for the extension of the fiber facility of the Heritage Building

- Voice over IP (VoIP) Online Directory, which was made available for DOST personnel
- continuous maintenance and monitoring of the network service and use of DOST-Central Office (CO), as well as DOST-Regional Offices (ROs) and PSTCs

The eDOST-INFRA regularly conducts trainings as part of its technology transfer strategy. It conducted three batches of OpenOffice.org and Basic Internet Application Training on 18-21 May 2010, 3-6 August 2010 and 31 August 2010 - 03 September 2010, as well as two batches of Technical Training on VoIP on 12-15 October 2010 and 9-12 November 2010. Aside from said trainings, the project also spearheaded the eDOST-INFRA Consortium Meeting, which was participated in by DOST agencies within the Bicutan Compound, on 17 November 2010.

For its one-year extension, the project is expected to upgrade the DOST-Philippine Council for Agriculture, Forestry and Natural Resources Research and Development and Knowledge Networking Towards Enterprising Agricultural Communities (K-AGRINET) Regional Consortia links. It shall likewise finish the permanent cabling of the fiber facility of the Heritage Building and visit DOST-ARMM, DOST-RO IX, DOST-RO XII, as well as the K-AGRINET Regional Consortia.

## Project 2: Upgrading and Development of DOST Information Systems (eDOST-INFOSYS), *On-going*

The eDOST-Infosys project aims to upgrade and develop DOST-wide information systems that would improve the Department's effectiveness in performing its operations and delivery of service.

The project team was able to accomplish data gathering and requirements **analysis** for the development of the following information systems:

- DOST Facilities and Equipment Information System, an online central repository of assets being used for DOST operations. It includes information essential in determining the type, quantity, quality, and status of assets procured/acquired
- DOST Clients/Partners Information System, an online central repository of DOST's clients/partners profiles and the Department's S&T services

A series of demonstrations, trainings and workshops were conducted throughout the year intended to ensure effective development and adoption of **information systems**. A total of 618 personnel from different DOST offices, attached agencies and ROs participated in 19 demonstrations and workshops that were organized. These activities were held in different venues such as DOST-ASTI, DOST Central Office and UPLB.

The following are information systems, which were demonstrated and approved under User Acceptance Testing Workshops include:

- DOST Scholarships Online Information System
- Philippine S&T Human Resource Infosys
- DOST Facilities and Equipment Infosys
- DOST Clients/Partners Information System
- Web Accessibility Training, DSOIS User Acceptance Testing Workshop, PSTHRIS User Acceptance Testing Workshop, DCPIS User Acceptance Testing Workshop and DFEIS User Acceptance Testing Workshop

Trainings conducted **include**:

- PHP and MySQL
- Web **Accessibility**

## Project 3: Program Change Management and Implementation of Open Standards to DOST (eDOST-OPEN STANDARDS), *On-going*

The project aims to ensure seamless adoption, as well as **effective** implementation, of all outputs developed under all projects of the eDOST Program.

This year, the project team accomplished the DOST-wide Software Resources Inventory to identify the hardware and software resources of the whole Department. The inventory results were summarized into a report, which was submitted to the Office of the Secretary. Aside from the inventory survey, the team also gathered data to determine the state of Open Standards and Open Source Software in the DOST. A research paper was written on this topic.

The project team, together with that of the eDOST-INFRA, successfully conducted separate OpenOffice.org trainings for Luzon, Visayas, and Mindanao regional offices and DOST-NCR. Moreover, Open Standards adoption and Open Source migration workshops were held, exclusively, with DOST-XI and DOST-NCR ROs, which were able to draft and finalize a transition workplan for their office.

The proposed Open Document Format (ODF) Policy Document was also drafted of which final version would be **presented** to the DOST IT Policy Group. Other major activities to be implemented in the project extension include OpenOffice.org trainings and Open Standards Adoption and Open Source **Software** Migration Workshops to DOST agencies and other interested government agencies. Furthermore, OpenOffice.org instructional audio-visual presentations would be devised for self-learning.

## Development of Interactive Science and Mathematics Courseware for Secondary Level Schools, *On-going*

As a continuing effort and commitment of both the DOST-SEI and the **DOST-ASTI** to upgrade and improve the **science** and **mathematics education** in the Philippines through the use of **ICT-supported** learning **innovations**, the **DOST-SEI** renewed its **funding** for the project entitled, "Development of Interactive Science and Mathematics Courseware for Secondary Level Schools" to cover 2010 project **operations**.

The project aims to digitize 560 science and **mathematics** high school lessons. The **digitization** began in April 2009.

## — COURSEWARE 2

Summary of Developmental and New Characters of the Development of Interdisciplinary Science and Mathematics Courseware for Secondary Level Schools (Phase 2) project

This year, the project team has completed 131 out of 133 (98%) first year high school modules. The newly digitized lessons provide enhanced simulations, graphics images and animations with synchronized voice-overs and added interactivities, engaging the high school students in a different, fascinating and virtually realistic learning environment.



## Tests, Analyses and Calibration Information System (TACIS) for the Department of Science and Technology (DOST). *Completed*

TACIS is an eGovernment-funded project, which was undertaken to develop an integrated information system that would enhance the operational capability of DOST's testing, analyses and calibration services. Its web portal, <http://tacis.dost.gov.ph/client/>, unifies all DOST attached agencies and regional offices (ROs) by providing interactive services that addressed not only customer support concerns, but also laboratory management concerns on a 24x7 basis via the Internet. It also facilitates the processing of information to expedite the generation of test reports and calibration services.

The major project accomplishments for 2010 include the server synchronization of different research development institutes (RDIs) and ROs, system maintenance, system implementation and promotion. These activities were part of the refresher training held at the DOST-Philippine Nuclear Research Institute (PNRI) and the DOST-Forest Products Research and Development Institute (FPRDI).

The proponents of the project are the

- DOST-Food and Nutrition Research Institute
- DOST-FPRDI
- DOST-Industrial Technology Development Institute
- DOST-Metals Industry Research and Development Institute
- DOST-PNRI
- DOST-Philippine Textile Research Institute
- 14 DOST ROs (CAR, CARAGA, I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII).

## Knowledge Networking Towards Enterprising Agricultural Communities (K-AgriNet). *Completed*

K-AgriNet is a strategic approach to help develop and modernize agriculture, forestry and natural resources sectors by utilizing ICT to access information, modern technologies and indigenous knowledge. The DOST-ASTI has been involved in the e-Consortia and e-Farm Components of the program which is expected to provide the following deliverables to the Regional Consortia and FITS Centers:

- PREGINET connectivity
- networking equipment;
- mobile internet subscription
- deployment and configuration
- technology transfer and training.

This year, the project visited almost all of the remaining active consortia to check the link status and network set-up. Priority was given to sites with reported problem. In addition, trainings on Connectivity and Multimedia were conducted to educate the staff on the basic concept and appreciation of the services offered by the project. Lectures during trainings include:

- Basic troubleshooting
- Basic networking
- VoIP
- Videoconferencing

Other activities during travels also include ocular inspection and discussions on PREGINET.



**APRSAF**  
ASIA-PACIFIC REGIONAL  
SPACE AGENCY FORUM



## Towards a Common e-Science Infrastructure with the European and Asian Grids (EUAsiaGrid) Project, *Completed*

The EUAsiaGrid Project, a European Commission (EC)-funded initiative in which the DOST-ASTI was one of the partner institutions, concluded on June 30, 2010. The final review of the project, held in August 2010 in Brussels, Belgium, elicited positive feedback from the EC for its successful results. The project's outputs were able to contribute in achieving its objective to extend the Grid Infrastructure to countries within the Asia-Pacific region to encourage new organizations to join and start collaboration on common e-Science projects.

The EC cited the following results of the project, among others

- increased awareness on the capabilities of grid infrastructures in the Asia-Pacific countries
- established repository of production-level grid applications to serve as a showcase
- technology transfer on the deployment and use of the EGEE infrastructure
- disseminated results of deployed grid applications at conferences and events

As a follow-through activity, the DOST-ASTI, in cooperation with the Academia Sinica Grid Computing Center (ASGC) of Taiwan, conducted a workshop on the SPECFEM3D\_GLOBE application in November 2010. This application simulates seismic wave propagation, which is important in helping researchers get a good picture of areas prone to ground motion. Participants were seismologists from the DOST-PHIVOLCS. The workshop was one of DOST-

ASTI's continuing response to the EUAsiaGrid's objective to provide support for scientific communities using Grid applications.

## EU-Southeast Asia Cooperation Project (SEACOOP) Phase II: Support to Policy Dialogues and Strengthening Cooperation between Europe and South East Asia or SEALING, *On-going*

This project aims to support the development of Information Society policy dialogues and strengthen cooperation on ICT research between the ASEAN countries and the European Union. It is one of the "support actions" in the portfolio of the European Commission's Directorate General Information Society and Media related to ICT theme of the European Union's (EU) Seventh Framework Programme for Research and Technological Development (FP7). SEALING started its activities in January 2010 and will end in December 2011.

As a consortium partner of the SEACOOP, the DOST-ASTI participates in the project as a Work Package Leader focused on Impact and Dissemination. The DOST-ASTI hopes to build on the gains of SEACOOP1 by continuing to engage in SEALING activities, help to further increase opportunities for ICT research collaboration with EU companies and institutions and support policy dialogues on ICT policies, standards and regulations.

Among the activities held under the SEALING project for 2010 are, the kick-off meeting in Indonesia, consortium meetings, cooperation events, and advisory committee meetings in Singapore, Philippines and Belgium. The DOST-ASTI, as one of the partners of the project, hosted the meetings and cooperation event, which were held in the country.

The project has successfully produced the following outputs:

- A report expounding on the bilateral programs between the EU and the South East Asia (SEA) which was published through the success stories of EU-funded SEA projects
- An extensive documentation of SEA's ICT Policies, Programmes and Research priorities in 10 SEA countries
- A list of South East Asian Excellence Research Centres, which were all uploaded in the SEALING website (<http://eurosotheastasia-ict.org/>)

The year ended with the conceptualization and drafting of a Framework Programme 7 (FP7) project proposal for the third phase of the SEACOOP project entitled, "Support to European Union-Association of South East Asian Nation partnership building and dialogues (SEACOOP-EU-ASEAN-ICT)".

Through the National Contact Point (NCP) establishment workshop done in Singapore and the networks built within the circle of the SEACOOP-SEALING project, the DOST-ASTI applied for the position of an NCP for ICT in the Philippines. It was eventually approved and registered in the Communication Research and Development Information Service website of the European Commission on 12 July 2010. Upon being established as the NCP for ICT, the Agency became part of the International ICT Partner Search Network (Ideal-IST), which is composed of around 70 ICT National partners from EU and non-EU Countries.

The SEALING project is funded by the European Commission, supported by the ASEAN, and coordinated by Sigma Orionis, a European consultancy firm.

Multicast Experiment using the Wideband InterNetworking Engineering and Demonstration Satellite (WINDS) Project, *On-going*

WINDS is a collaboration project between the DOST-ASTI and the Japan Aerospace Exploration Agency (JAXA). It was initiated to help the facilitation of a collaboration-style distance education for regional conferences and lectures and the development of e-Learning materials for human resource development, information technology (IT) engineers and instructional designers. From 15 January 2010 to 17 December 2010, the UP-Diliman, Thailand's Chulalongkorn University and Japan's Tokyo Institute of Technology, conducted a series of experiments using the WINDS infrastructure.

Aside from Internet communication and e-Learning advantages, WINDS also helps in disaster monitoring and management. The Sentinel Asia, a voluntary-based initiative led by the Asia-Pacific Regional Space Agency Forum, in supporting disaster management activity in the Asia-Pacific region, uses WINDS in disaster monitoring and fast data dissemination. The disaster organizations in the Philippines acquire information from Sentinel Asia with the assistance from the DOST-ASTI, which operates the country's Sentinel regional server. On 06-08 July 2010, the DOST-ASTI participated in the Sentinel Asia Joint Project Team Meeting 2010 held at the Hyatt Hotel Manila. Said meeting was hosted by the DOST-Philippine Council for Advanced Science and Technology Research and Development and attended by disaster management experts from 52 member-organizations in Asia.

## Upgrading of Facilities of the DOST Research and Development Institutes in Support to Research and Development (R&D) and Scientific and Technological (S&T) Services, *Completed*

This three-year project aims to upgrade the facilities and **expand** the scope of technical services of the DOST RDIs to support its R&D and S&T services. It has three strategies to achieve its objectives:

1. replacement of worn-out equipment
2. renovation/improvement of existing facilities
3. establishment of new facilities/ capabilities to meet client demand

The third year of the project dealt with the replacement of worn-out equipment, expansion of services and renovation of facilities. Among the equipment acquired by the project are:

- laboratory security system solution
- network power continuity system
- PCWHD license

For the improvement of laboratories, waterproofing and roof construction were undertaken in the PREGINET laboratory and VSAT area. Further, DOST-ASTI laboratories, which include the Open Source, Grid, Embedded, CSD and PREGINET laboratories, received additional office equipment and furniture.

### RESEARCH AND DEVELOPMENT INSTITUTES (RDI) UPGRADING PROJECT



## Establishment of the DOST-PEZA Open Technology Business Incubator (DOST-PEZA Open TBI), *On-going*

In its second year, the DOST-PEZA Open Technology Business Incubator (TBI) housed 17 start-up IT companies. Coming from diverse backgrounds, incubatee expertise includes original content animation, software solutions, open source migration, wireless technologies, integrated circuit design and embedded systems.

The DOST-PEZA Open TBI family is composed of a Steering Committee formed by heads of private and government institutions, partners such as BrainGain Network, Globelabs and Entrepinoy, and select innovative R&D companies, namely:

- Convergelink IT Solutions
- EastAsia Technologies Corp.
- Graphikos Software Solutions, Co.
- Information Lifecycle Management, Inc.
- Itemhound Corporation
- JLC IT Solutions Resource
- Lean Tech Management, Inc.
- Lightbox Animation Studio
- Metahelix Management Information (TOMA)
- Module01, Inc.
- Orchestrionix, Inc.
- Philabs, Inc.
- Philippine Open Source Distribution, Inc.
- Serbizyo International Co. Ltd.
- Techfarm, Inc.
- Unlimited Technologies, Inc.
- Webcast Technologies, Inc.
- Xinyx Design Consultancy and Services Inc.

Joining business incubators across the world, DOST-PEZA Open TBI celebrated the Global Business Incubation Day on December 8, in recognition of efforts to assist stabilizing small and medium enterprises, improve the national economy, and improve the capability of the Filipino S&T community.



## MICROELECTRONICS & EMBEDDED SYSTEMS RESEARCH & DEVELOPMENT

### Embedded Systems Development, *On-going*

The embedded **systems** development efforts during the year focused on the USB-GSM Data solution. This is an offshoot of the initial model of the PCI type GSM Data Terminal. It is a small, portable, compact external device which can be plugged in any **computer** with a USB port. Like its **predecessor**, the USB-GSM data **solution** is capable of text blasting. It can **communicate** with any SMS-capable device and can be configured to automate the handling of **incoming** and **outgoing** messages.

### Development and Commercialization of Locally Designed Digital Wood Moisture Meter for Bamboo and other Non-timber Forest Products (DWMM for Bamboo), *Completed*

This joint project with the DOST-FPRDI and Alexan **Commercial**, was aimed at **developing** a simple device that would help handicraft and furniture makers **determine** the moisture content of **non-timber materials** used in their products, to make them globally **competitive** and at par with **international standards**. DOST-ASTI **developed** the design for a hand-held electronic device that is **practical**, simple, low-cost and can be used to **determine** the moisture content of bamboo and other raw materials classified as non-timber products used for handicraft and furniture making.

## CONTRACT RESEARCH

### Customization of a Linux-based Embedded Operating System for the VSX-6154 System Board, *Completed*

The **Customization** of a Linux-based Embedded Operating System for the VSX-6154 System Board was a collaborative project of DOST-ASTI, the implementing **agency**, and Micrologic Systems, Inc. This project primarily aimed at customizing a Linux-based embedded operating system for Micrologic Systems, Inc. with support to 3G wireless modems, particularly, the Huawei E220, E1552, E1550, and ZTE MF627, as provided by local telephone **companies** (Globe and Smart).

Specifically, the **embedded** operating system, developed by the DOST-ASTI, connected the VSX-6154 system board to the internet enabling it to run applications, which could send and **receive** data to and from remote servers. It used 3G wireless **modems** such as, but not limited to, Globe Tattoo and Smart Bro.

Other project outputs included:

- an image of a **customized** Linux-based embedded OS for the VSX-6154 **system** board with support to 3G wireless modems
- a source code and **custom** configuration of the used Linux kernel
- **project documentation**

The project was **accomplished** in the span of three months, from April 2010 to June 2010.



## MFO 2 Technology Transfer Services

### TECHNOLOGY COMMERCIALIZATION

With the continued enhancement and improvement of DOST-ASTI's Information System (ASTI Infosys), its potential and value as a cost-effective e-Government solution continues to grow. As such, 2010 marked an increase in interest among other government agencies in the adoption of ASTI Infosys. Some of the agencies that engaged DOST-ASTI to customize ASTI Infosys to their offices are the DOST-PNRI, DOST-Philippine Council for Industry and Energy Research and Development, and the Planning and Evaluation Services of the DOST-CO.

In order to generate returns to its continuing investment in the enhancement and improvement of the Infosys, and properly value the technology it has developed, the DOST-ASTI has started to charge licensing fees for the Infosys. Thus, the Agency can simply license Infosys for a very reasonable one-time licensing fee, to other agencies, who can already use their own resources to customize and integrate the Infosys with their existing systems. The DOST-ASTI continues to welcome engagements with prospective clients, who are otherwise lacking technical capacity in the customization and integration of Infosys.

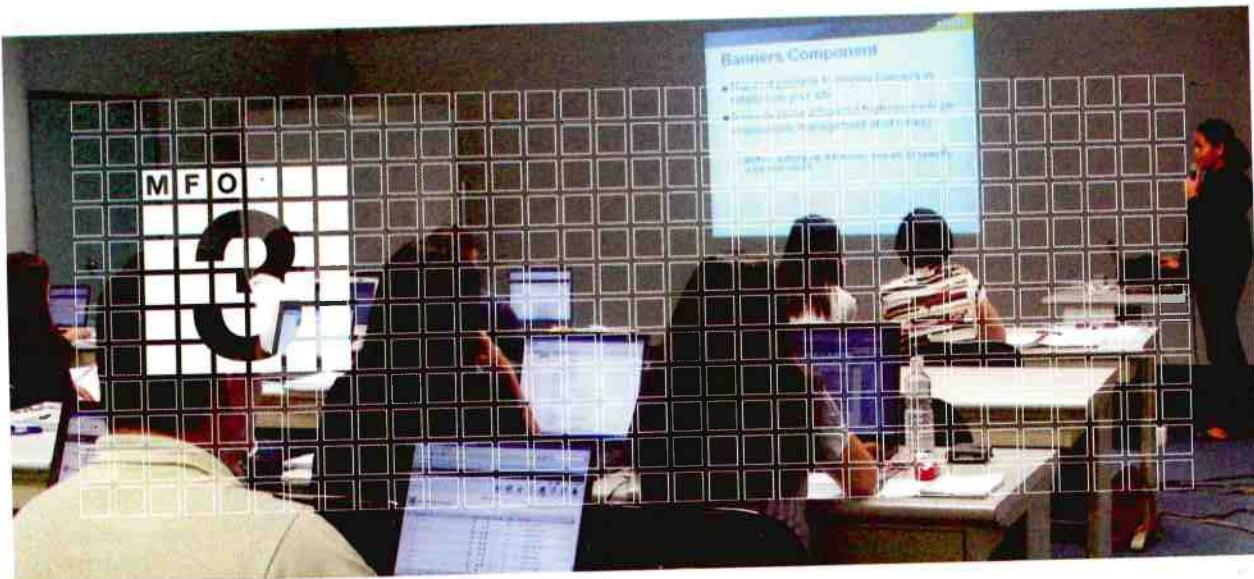
Other ICT and electronic products, which continue to be marketed and commercialized, are GSM Data Terminal, Digital Multimeter, Digital Wood Moisture Meter, and

Bayanihan Linux. It was noted that 352 clients consisting of government offices, private companies, schools and universities and private individuals availed of these products.

A total income of P105,345 was generated from the above-mentioned technology commercialization efforts. Furthermore, nine technology transfer agreements covering the commercialization of GSM data terminal and DOST-ASTI Infosys were signed.

### TECHNOLOGY DIFFUSION

Considering an increasing number of clients, who are interested in the technologies and products developed by the DOST-ASTI, the diffusion activities being adopted by the Agency are proven effective. The diffusion strategies being employed include product presentation, demonstration and launching and participation in technology exhibits. This year's statistics showed that 10,647 clients from the government, industry and academe had the opportunity to witness and learn about the research outputs of the DOST-ASTI.



## MFO 3 Science & Technology Services

Philippine Research, Education and Government Information Network (PREGINET)

DOST-ASTI continues to manage PREGINET, the only research and education network (REN) in the country with links to international RENs such as Asia Pacific Advanced Network (APAN), Asian Internet Initiatives (AI3) and Trans-Eurasia Information Network 3 (TEIN3), which enables technology exchange and international research collaborations. PREGINET offers value-added services, including

- Voice over IP
- videoconferencing
- Video streaming
- Web hosting
- Server co-location
- Network design
- Network monitoring and management
- Site mirroring
- Technical consultancy and support

In light of its continuing advocacy in promoting Internet Protocol version 6 (IPv6), the Office of the President issued Executive Order No. 893 on 29 June 2010 pushing for the use of IPv6. Said issuance pursues "the policy of adapting and promoting technology for national benefit" since the exhaustion of IPv4 addresses is threatening to impede the growth and development of the government's internet-based services.

Apart from its IPv6 campaign, PREGINET consistently promotes e-Learning activities in the country. Among the

e-Learning activities, which PREGINET participated in, are the COllaboration for Network-eEnabled Education, Culture, Technology and sciences (CONNECT) Launching and School on Internet Asia (SOI Asia) Site Inauguration held at the Faculty of Engineering, National University of Timor Leste (UNTIL) on 27 July 2010 and 09 December 2010, respectively.

PREGINET continues to support telemedicine in the Philippines thru its collaboration with the National Telehealth Center (NThC) and UP - Philippine General Hospital (PGH). It also gives regular technical support to UP-PGH during the APAN Medical Technical Working Group's live surgery demonstrations like the Asian Fetal Teleconference 2010 and Maternal-Fetal Medicine Session on 28 September 2010 and 09-13 August 2010, respectively. In addition to PREGINET's strong partnership with NThC and UP-PGH, it attends conferences to keep up with new technologies in telemedicine. On 18 December 2010, PREGINET joined the 4th Asia Telemedicine Symposium in Seoul, Korea which was organized by Japan's Kyushu University.

Another major contribution made by PREGINET is its streaming assistance to the Senate deliberations from November 2010 to December 2010, which is in line with said legislative body's goal to provide the public a general, accurate information on its proceedings.

PREGINET also handled the network requirement during

the Philippines-Korea Video Reunion on 25 November 2010. Said initiative was organized by the National Information Society Agency of the government of Korea which offered Philippine multicultural families in Korea and their local Philippine families an opportunity to unite via video connections on IT-based technologies.

In terms of local partners, a number of institutions joined the PREGINET this year such as

1. Professional Regulatory Commission
2. Commission on Appointment
3. Metro Roxas Water District
4. Court of Appeals (Main, Cebu and Cagayan de Oro Office)
5. PAGASA Cebu
6. UP Visayas - Miagao

#### Domain Name System (DNS) Administration

The Management Information Systems Unit under the Knowledge Management Division (KMD) of the DOST-ASTI continues to administer and maintain the .gov.ph domain as existing and prospective clients continue to access the .gov.ph Domain Registry site to apply for a new .gov.ph domain and request for a modification in their .gov.ph domain or deletion of their .gov.ph domain. To better serve its clientele, the .gov.ph Domain Registry Site has been reengineered, providing more efficient processing and user-friendly interface to its clients and administrators.

This year, the .gov.ph domain administrators were able to process a total of 426 online transactions out of which, 104 were approved applications for new .gov.ph domain name, 145 were requests for domain modification, 35 were requests for deletion, so that the organization can apply for a new domain name and 44 were requests for online issuance of log-in information. This is in addition to an approximately hundred requests, via email and over the phone, for log-in information and consultations with the .gov.ph domain subscribers on the administration of the domain delegated to their organizations.

The service is still free of charge. Clients being accommodated are government institutions and organizations, following the Philippine Government Internet Policy and Guidelines posted at the DNS website. To date, a total of 1,981 activated domains are being maintained.

#### Training Services

The DOST-ASTI conducted a total of 12 trainings this year. A total of 426 people were trained, 79% of which are from government sector, 9% from the academe and 12% from private organizations. Majority of the trainings (7 out of 12) were conducted in partnership with the DOST-funded projects of the DOST-ASTI such as eDOST-Infra, eDOST-Infosys, EDOST-Open Standards and PSciGrid Projects. Two major events were also conducted in June 2010 and September 2010, in collaboration with the APNIC (Asia Pacific Network Information Centre) and SEACOOP (Southeast Asia-Europe Cooperation).

This year, DOST-ASTI trainings generated a total annual gross income in the amount of P977,762.55. The bulk of the income came from last year's APRICOT training receivables and sponsorship received from UNESCO, while 14% of the total gross income (P132,900.00) was generated from paid in-house Technical Training on VoIP, which was conducted in October 2010 and November 2010. Based on the summary of evaluations (see Table 3), the trainings conducted achieved an overall rating of 4.1, equivalent to a "Very Satisfactory" rating, which is a good indication that DOST-ASTI trainings provide quality, affordable and up-to-date trainings to its clients.

However, trainings conducted this year decreased by 32% from the previous year's, since the staff movement and transfer of the training unit from the Solutions and Services Engineering Division to the KMD required a necessary transition and adjustment period. Looking forward, the group aims at increasing the revenue, customers and training partnerships in 2011, with the staging of next year's Philippine IPv6 Conference and Training as the first activity, hopefully, generating a big income for the DOST-ASTI.

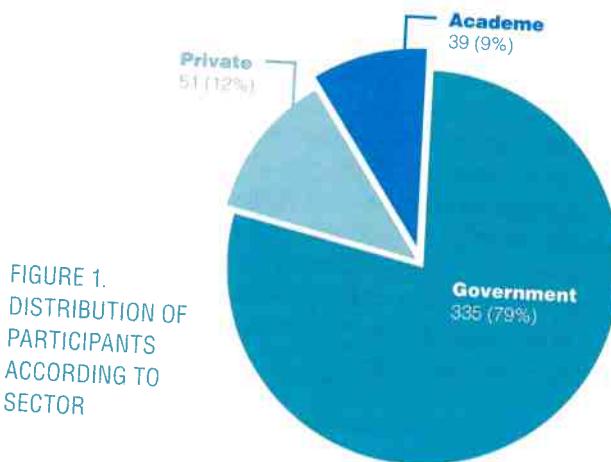


FIGURE 1.  
DISTRIBUTION OF  
PARTICIPANTS  
ACCORDING TO  
SECTOR

**TABLE 1. SUMMARY OF TRAINING ACTIVITIES**

Training	Date Conducted	Venue	No. of Participants	Paid / Sponsored by
Open Office 3.2 for Beginners	May 18-21, 2010	ASTI Training Room	35	eDOST Project
SEACOOP Consortium Meeting/Workshop	June 21-22, 2010	Mactan Shangri-La Resort and Spa	26	Sigma Orionis
SEACOOP Networked Electronic Forum	June 23, 2010	EDSA Shangri-La Hotel	65	Sigma Orionis
SPECFEM 3D_Globe Job Submission Training on Pscigrid	July 13, 2010	ASTI Computer Training Laboratory	5	PSciGrid Project
ASTI Day Seminar/Workshop	July 27, 2010	ASTI Training Room	119	UNESCO/ASTI
OpenOffice 3.2 for Beginners with Basic Internet Training	August 3-6, 2010	Hotel Conchita, Cagayan de Oro City	31	eDOST Project
OpenOffice 3.2 for Beginners with Basic Internet Training	August 31 to September 3, 2010	Cebu City	31	eDOST Project
5th Internet Governance Forum (Remote Participation)	September 14-17, 2010	Audio Video Room, CICT	51	APNIC
Technical Training on VoIP/Asterisk Administration	October 12-15, 2010	ASTI Computer Training Laboratory	14	PLDT and eDOST Infra Project
PHP & MySQL Training	October 11-14, 2010	ASTI Training Room	15	eDOST-InfoSys Project
OpenOffice 3.2 for Beginners with Basic Internet Training	October 26-29, 2010	DOST-NCR	23	eDOST Project
Technical Training on VoIP/Asterisk Administration	November 09-12, 2010	ASTI Computer Training Laboratory	12	eDOST Infra Project
<b>Total</b>				<b>426</b>

**TABLE 2. SUMMARY OF TRAINING EVALUATIONS**

(excluding the Internet Governance Forum and SEACOOP Activities)

Needs Improvement: 1.0 - 1.83; Unsatisfactory: 1.84 - 2.69; Satisfactory: 2.70 - 3.53; Very Satisfactory: 3.54 - 4.37; Excellent: 4.38 - 5.0

Criteria	Needs Improvement	Unsatisfactory	Satisfactory	Very Satisfactory	Excellent	Average Rating
Speaker	-	-	-	3.98	4.75	4.36
About the training	-	-	3.29	4.02	4.86	4.06
About the laboratory exercise	-	-	3.33	3.67	4.81	3.93
Course Material	-	-	3.25	4.02	4.78	4.02
Support Services, Facilities, and Food	-	-	3.50	4.04	4.81	4.12
<b>Overall Rating</b>						<b>4.10 (VS)</b>

**TABLE 3. SUMMARY OF INCOME GENERATED AND TRAININGS CONDUCTED FROM 2008 TO 2010**

Year	No. of Trainings	Annual Generated Income
2008	11	PhP 478,007.00
2009	37	PhP 4,227,834.66
2010	12	PhP 977,762.55

# FOREIGN AND LOCAL LINKAGES

The DOST-ASTI continues to strengthen its existing linkages with partner institutions and forge additional partnerships through collaborative R&D projects and activities with the following consortia, institutions and organizations:

## A. FOREIGN LINKAGES

### Ministry of Agriculture, Forestry and Fisheries Information Network (MAFFIN), Japan

The MAFFIN, which operates in cooperation with the APAN, provides online hosting to a number of agriculture, forestry and fishery organizations in different countries.

Since 2004, the DOST-ASTI has served as the direct termination point in the Philippines of the Japan-PH MAFFIN/APAN link with which a number of research and education endeavors in the country have been facilitated, including access to crucial data used in typhoon tracking, as well as distance lectures and education initiatives conducted between the Philippines and foreign universities. The Philippine participation in international conferences, symposia, fora and workshops, through videoconferencing and establishment of Acces Grid facilities, has been made possible because of said link.

The MAFFIN continues to provide funding support for the maintenance of the country's link to APAN. To date, the link is at 155 Mbps and the DOST-ASTI is expecting an increase of the link's capacity to handle more content and facilitate more collaborative activities.

### Asia-Pacific Advanced Network (APAN)

APAN is a non-profit international research and education network which aims to facilitate and coordinate the

development, deployment, operation, and technology transfer of advanced network-based applications and services in the research and education community within the Asia-Pacific Region.

The DOST-ASTI has become a primary member of APAN since 2003 and collaborates with the latter in research, development and deployment of advanced networking technologies, as well as applications for agriculture, natural resources, disaster management and distance education, among others. The Agency continues to strengthen its active participation by attending APAN meetings and conferences such as Asia Pacific's foremost events for showcasing advanced broadband network technologies and applications.

This year, the DOST-ASTI attended the 29th and 30th APAN Meeting on 8-11 February 2010 and 9-13 August 2010, respectively. The meetings had tutorials, oral presentations and demonstrations that covered advanced network technologies and applications.

### Keio University, Japan

DOST-ASTI's partnership with the Keio University started in 1998, when the Agency participated in the Asian Internet Interconnection Initiatives (AI3). AI3 is an international research consortium which aims to develop cutting-edge technologies for the Internet, which include IPv6, multimedia communication mechanism and advanced Internet applications. It facilitates the development of knowledge-based information infrastructure in Asian region.

Apart from AI3, the DOST-ASTI has also been participating in the Keio University's School-on-the-Internet (SOI) Asia Project. SOI Asia Project aims to contribute to higher education development in Asian countries via distance

learning system breakthroughs that will utilize the AI3 infrastructures.

Through its active participation in AI3 and SOI Asia, the DOST-ASTI became a member of the Collaboration for Network eNabled Education Culture, Technology and science (CONNECT), a UNESCO initiative that actively contributes to the development and improvement of research and education in the Asia and Pacific.

The collaborative activities between the DOST-ASTI and Keio University include the exchange of scientific information, joint research activities, mutual visits of researchers and participation in seminars and conferences organized by respective institutions, among others.

The DOST-ASTI participated in SOI Asia/AI3 Meeting and SOI Site Inauguration at the Faculty of Engineering, National University of Timor Leste on 01-04 June 2010 and 09 December 2010, respectively. Further, the Agency launched CONNECT in the Philippines on 27 July 2010. Participants in said event came from research and development institutes, state and private universities, government agencies and medical community.

#### Trans Eurasia Information Network 3 (TEIN3)

TEIN3 is the third-generation Trans-Eurasia Information Network, which provides a large-scale research and education data-communications network for the Asia-Pacific region.

It was launched in the Philippines on 25 February 2009, during the APRICOT 2009 Manila. At present, the country has a 45 Mbps direct connectivity to TEIN3 via Hongkong. With said link, more research and education activities between PREGINET's local and international partners, have been facilitated.

The DOST-ASTI maintains its active participation by attending TEIN3 trainings and workshops such as the TEIN3 NOC Workshop in Bangkok, Thailand on 30 July - 4 August, 2010, among others. The participation of the Philippines in the TEIN initiative started in 2004 through PREGINET.

#### Japan Aerospace Exploration Agency (JAXA)

JAXA is Japan's national aerospace agency responsible for research, development and launching of satellites. The DOST-ASTI, in collaboration with JAXA, implemented the WINDS. Said collaborative research experiment was undertaken to verify the function and effectiveness of the WINDS satellite.

### B. LOCAL LINKAGES

#### PREGINET

Various local linkages with research and education institutions, government agencies and private companies were established in 2009. Most notable of which, are those new partnerships forged in relation to PREGINET connectivity and services. These include the following:

- Connectivity
  - UPV Miagao
  - UPV Cebu
  - Bases Conversion and Development Authority
  - Department of Foreign Affairs
- Services
  - TESDA
  - Commission on Appointment
  - Professional Regulatory Commission
  - National Historical Institute

# ORGANIZATIONAL LEARNING AND DEVELOPMENT

## KNOWLEDGE MANAGEMENT

The Knowledge Management Division (KMD) ramped-up activities, even as it filled its remaining vacant regular positions per the approved rationalization plan of the Agency in 2009. This year, the KMD focused on:

- Improving knowledge management impact by supporting the Agency's operations and quality management
- Developing appropriate policies, mechanisms and **activities** that capture, promote, share and reuse relevant information and knowledge
- Developing and enhancing DOST-ASTI information **systems** to support business processes and learning
- Facilitating communities of practice to allow direct, peer-to-peer sharing of valuable knowledge not captured in **information** systems
- Improving **time-to-competency** and learning for new regular and project staff
- Strengthening external knowledge networks, linkages and partnerships

Accomplishments of DOST-ASTI's knowledge management program include:

- Nine Knowledge Sharing Sessions with a total of 246 participants (or an average of 27 participants per **session**)
- 220 Technology Intelligence articles, uploaded
- Full KM Audit for the **Agency**
- Updated ASTI Operations Manual
- Updated ASTI KBase website
- Three CoP meetings
- Completion of data **gathering** for project case studies/success stories on K-Agrinet, TACIS and DOST Infosys projects

- Involvement in five proposed projects for external GIA funding

## MANAGEMENT INFORMATION SYSTEMS

The DOST-ASTI information systems, collectively known as the ASTI Infosys, was further improved by the Management Information System (MIS) Unit of the KMD as a continuing support to the **Agency's** business processes and providing more intuitive user interface.

Composed of five major modules:

1. Personnel Management
2. Procurement and **Inventory**
3. **Knowledge Management**
4. Operations Management
5. Project Management, the entire system was reengineered, involving modification to codes and scripts and utilization of more advanced web **development** technologies

This year, new modules were developed, including a Document Tracking module for efficient tracking of documents used in different transactions, e.g., **contract** management and procurement process, routed among various personnel. Submodules such as the Suppliers Database and **Invitation** to Bid Form Generator under the Procurement and Inventory System, were likewise improved to conform with BAC-specified requirements. Furthermore, a Payroll **System** under a new major module, Financial Management System, was developed to facilitate automatic computation of DOST-ASTI staff salaries.

As the MIS continued to learn more advanced **development** techniques, the ASTI Infosys was capacitated in providing services to its internal clients according to their needs. A different **development** framework, pertaining to a modified version of an agile approach, was started. In 2011, the MIS would implement an ASTI Infosys Reengineering Phase II to make the **system** **accessible** outside the **Agency's** Local Area Network.

## PROCESS DEVELOPMENT

DOST-ASTI successfully completed a transition of its Quality Management System (QMS) to the ISO 9001:2008 standard. This transition from ISO 9001:2000 to 2008 mirrored the Agency's continual improvement in meeting organizational performance objectives per its mandate and international quality standards. The new ISO certification was conferred by the Certification International Philippines, Incorporated (CIPI) on 13 September 2010 with a validity until 17 March 2012.

Prior to said transition, two separate surveillance audits were conducted by the CIPI on 04 February 2010 and 11 August 2010, respectively. Among QMS areas audited within the year, Purchasing, Maintenance, Internal Audit and Infrastructure were issued, separately, with a Nonconformity Report (NCR). However, said NCRs were immediately addressed through the conduct of root cause analyses followed by corrections and corrective actions by the Process Owners concerned and the Top Management.

To further capacitate the Agency's ISO Technical Working Group (TWG), some of its members were sent by the Management to different seminars on understanding and implementing ISO 9001:2008, effective internal auditing and total quality management conducted on the 2nd and 3rd quarters of the year. The support that the Management continued to extend, proved its commitment to effectively implement the Agency's QMS.

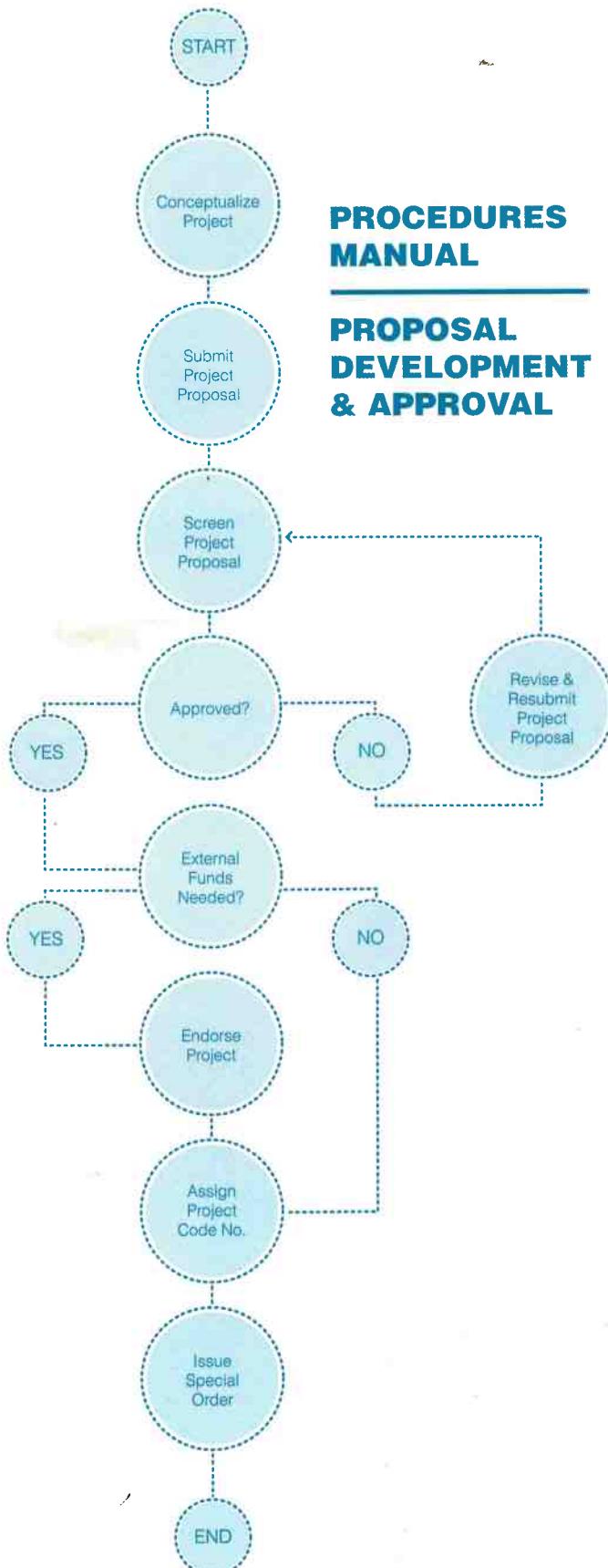
Another surveillance audit would be conducted in February 2011. In this light, the Agency, started to review its processes which were observed in the previous audits as "opportunity for improvement," "for continual improvement" or otherwise "potential NC," and subsequently act upon the same, appropriately. Said efforts served as the Agency's preventive actions against tendencies towards nonconformance to policies and standards.

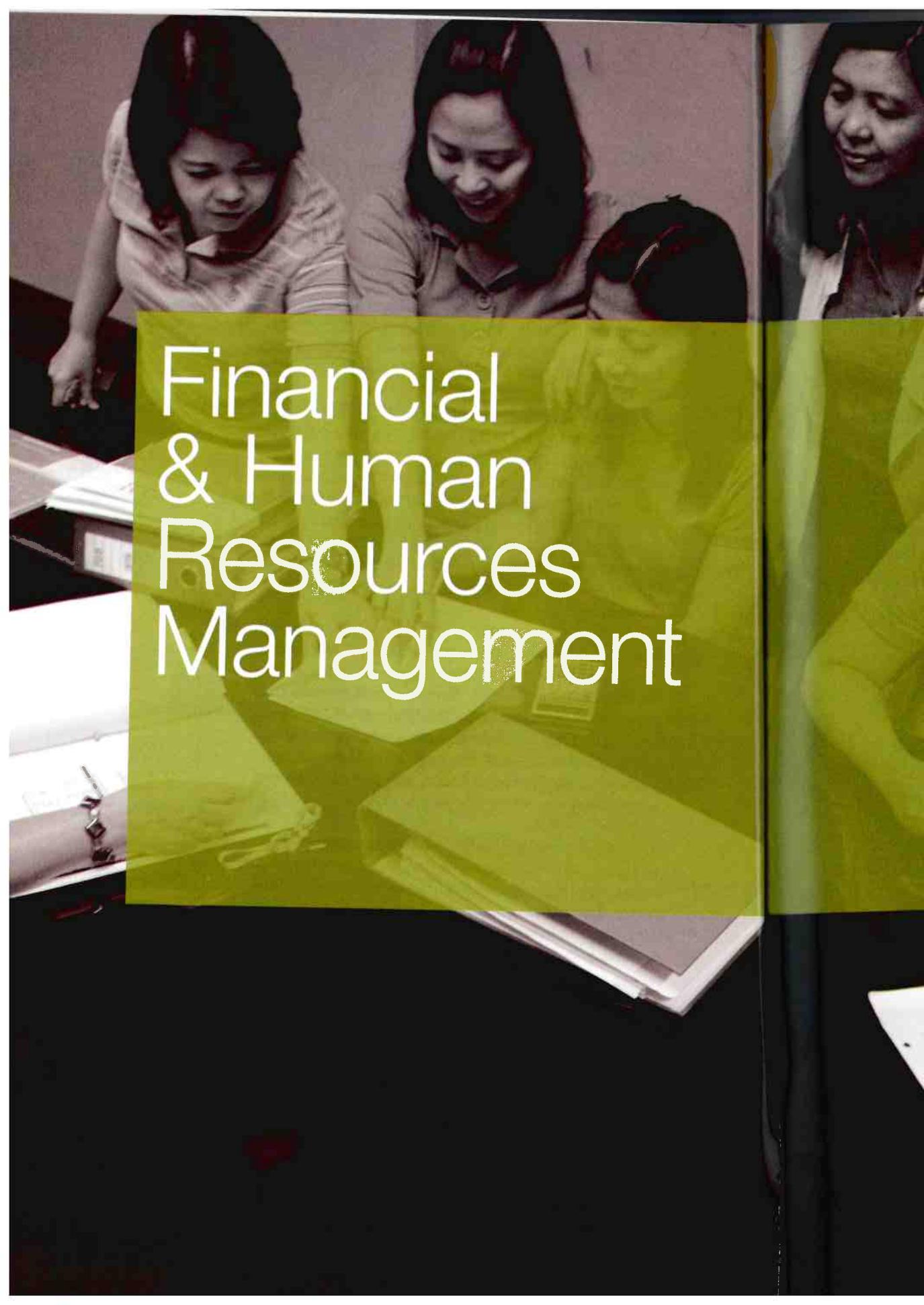
In general, the DOST-ASTI showed a continual improvement in the implementation of its QMS as evidenced by a whole-year-maintained "very satisfactory" rating in meeting and exceeding customer requirements and expectations. Specifically, from January to June 2010, the Agency got a 4.19% rating which increased to 4.46% from July to December 2010.

The ISO 9001:2008 certification reaffirmed DOST-ASTI's commitment to accountability, economy, efficiency, effectiveness and ethicality in its operations as a research and development institute.

## PROCEDURES MANUAL

### PROPOSAL DEVELOPMENT & APPROVAL





# Financial & Human Resources Management



ASTI's financial resources for 2010 enabled the Institute to accomplish its R&D goals, provide high value services, and facilitate the transfer of knowledge and technology. This quantitative measure is complemented by qualitative indicators in terms of human resource achievements. Such is exemplified by numerous awards and commendations garnered by our Institute as well as individual staff.

# FINANCIAL PERFORMANCE

The ASTI has generated a total allotment of P92,329,571.96 in CY 2010. Of this amount, P70,823,900.64 or nearly 77% was utilized as of December 31, 2010. Utilization summary shown below:

**TABLE 1. UTILIZATION SUMMARY FOR 2010 (IN PESOS)**

Particulars	Allotment	Obligations	Balances	% Utilization
<b>A. Current Year's Allotment</b>				
1. Regular Appropriations	37,287,000.00	37,224,030.69	62,969.31	99.83%
2. Special Purpose Funds	3,942,900.00	3,942,900.00	.00	100.00%
MPBF	3,942,900.00	3,942,900.00	.00	100.00%
3. Other Releases	50,557,091.21	29,244,794.20	21,312,297.01	100.00%
Automatic Appropriations-Retirement & Life Insurance Premiums	1,603,000.00	1,603,000.00	.00	57.85%
ASA			.00	100.00%
Fund 171	47,998,205.21	26,700,611.05	21,297,594.16	55.63%
<b>Sub-Totals</b>	<b>955,886.00</b>	<b>941,183.15</b>	<b>14,702.85</b>	<b>98.46%</b>
	<b>91,786,991.21</b>	<b>70,411,724.89</b>	<b>21,375,266.32</b>	<b>76.71%</b>
<b>B. Prior Year's Allotments (Continuing)</b>				
1. Regular Appropriations	515,000.00	384,595.00	130,405.00	74.68%
2. Other Releases	27,580.75	27,580.75	.00	100.00%
Fund 171	27,580.75	27,580.75	.00	100.00%
<b>Sub-Totals</b>	<b>27,580.75</b>	<b>412,175.75</b>	<b>130,405.00</b>	<b>75.97%</b>
<b>Grand Totals</b>	<b>92,329,571.96</b>	<b>70,823,900.64</b>	<b>21,505,671.32</b>	<b>76.71%</b>

The bulk of ASTI's 2010 budget was sourced from other sources of funds, mainly from fund transfers/ sub-allotments received from the DOST Central Office to fund on-going grants-in-aid (GIA) projects being implemented by ASTI:

## SUMMARY BY FUND SOURCE

Fund Source	Allotment	Obligations	Balances
Regular Appropriations	37,802,000.00	37,608,625.69	193,374.31
Special Purpose Fund	3,942,900.00	3,942,900.00	.00
Other Releases	50,557,091.21	29,244,794.20	21,312,297.01
<b>Totals</b>	<b>92,329,571.96</b>	<b>70,823,900.64</b>	<b>21,505,671.32</b>



While comprising 52% of ASTI's total available **allotment** for CY 2010, the utilization rate of GIA-funded projects remained at only 55.63%, representing 99% of ASTI's **unobligated/unutilized** balances for 2010. Said unobligated / unutilized balance represents funding requirement for DOST-CO funded GIA projects. Shown below is the comparative summary of the annual appropriations made to ASTI (regular budget).

ANNUAL BUDGET  
(in million pesos)

Fiscal Year	PS	MOOE	CO	Total
2009	15,684	15,896	-	31,580
2008	17,177	13,893	12,804	43,874
2007	17,042	7,508	5,195	29,745
2006	14,232	7,508	-	21,740

ANNUAL BUDGET  
(in million pesos)

- Personal Services (PS)
- (MOOE)
- Capital Outlay (CO)

# HUMAN RESOURCE

Year after year, **women** and men of the DOST-ASTI have shown their dedication in contributing to the fulfillment of national development priorities in the fields of ICT and electronics. In 2010, the concerted efforts of the Agency's human capital, composed of 63 regular personnel and 85 project staff, were even more emphasized by the awards and commendations received by the Agency.

The Digital Wood Moisture Meter product of the Solutions and Services Division - Embedded Services Group, was given an "Outstanding Utility Model Award" in the 2010 National Invention Contests and Exhibits.

The Research and Development Division, which was involved in the implementation of the EUAsiaGrid project, was likewise given the "highest rating" of any EC-funded e-Infrastructures project by the EC Review Committee, "for producing high quality results and exceeding expectations."

The highest honors received by the DOST-ASTI in 2010, were those conferred to its Director. Two (2) major awards received by Director Denis F. Villorente were the "PAGASA Wind Vane Award" and the "2010 Gawad Career Executive Service." These awards were given in recognition of Director Villorente's exemplary leadership in directing the Agency to provide valuable contributions to the S&T sector.

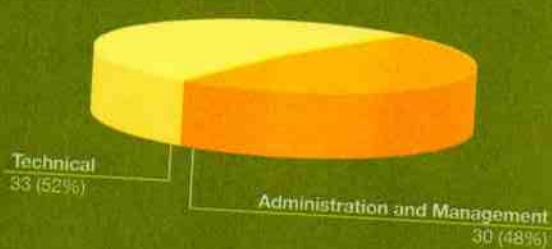
It is likewise worthy to mention that in the successful conduct of the first automated national elections in the country, the DOST-ASTI staff, together with personnel from other DOST agencies, exerted efforts, particularly, by serving as BEI certifiers. Further, some of them served as members of the Commission on Elections - Technical Working Group, which was headed by Director Villorente.



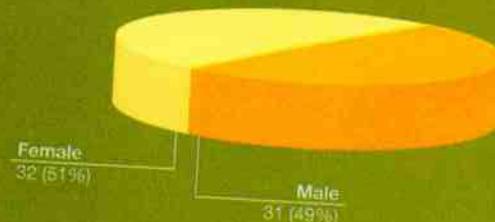
2010 GAWAD CES AWARD

2010 Director Denis Villorente received the  
2010 Gawad Career Executive Service  
Award from President Benigno Aquino III  
in recognition of his contributions to  
the Commission on Elections.

PERSONNEL  
DISTRIBUTION  
by Job Function



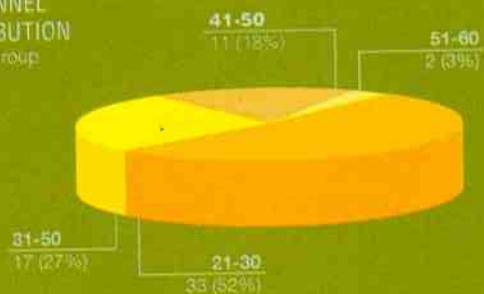
PERSONNEL  
DISTRIBUTION  
by Sex



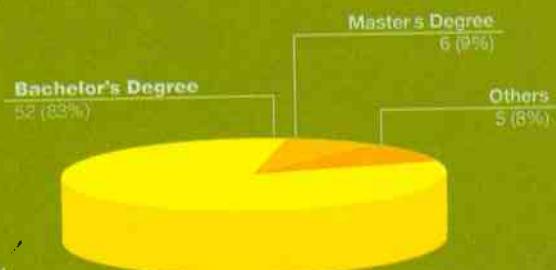
In addition to the **aforementioned** recognitions, the following citations were likewise given by the DOST-ASTI PRAISE Committee to the Agency's **deserving employees**:

Award	Name of Awardee
Outstanding R&D Project Award	
1st Prize	Development and Commercialization of Locally-designed Digital Wood Moisture Meter
2nd Prize	EU AsiaGrid Towards a Common e-Science Infrastructure for the European and Asian Grids
Outstanding Contribution Award	
1st Prize	Bids and Awards Committee
2nd Prize	Establishment of the DOST-PEZA Open TBI Knowledge Management Division
3rd Prize	Accounting and Cash Sections ISO Technical Working Group
Outstanding Technical Service Award	
1st Prize	PREGINET
2nd Prize	ASTI Technical Working Group to the COMELEC
3rd Prize	Embedded Systems Group
Distinguished Leadership Award	Dir. Denis F. Villorente Jose Eric S. Maglanque Joanna G. Syjuco Bayani Benjamin R. Lara Mary Grace C. Dy Jongco
Peer's Choice Award	Maricel Z. Castor (OD) Danilo R. Hapin (FAD) Emmanuel P. Balintec (RDD) Neil Xavier C. Elpa (SSED) Rusnell A. Espinoza (CSD) Aurora T. Leonido (KMD)
Loyalty Award	Emily R. Pagador

PERSONNEL  
DISTRIBUTION  
by Age Group



PERSONNEL  
DISTRIBUTION  
by Educational Attainment



## TRAININGS ATTENDED

To continually develop and enhance the skills of its employees, the DOST-ASTI has sent its staff to various trainings and seminars, as summarized in the table below:

Title	Participants	Date	Venue
Seminar-Workshop on Gender Sensitivity and Gender-Responsive Planning and Budgeting	ASTI Staff	Jan 7-8, 2010	ASTI Training Room
Workshop on Research Evaluation on Support and Hands-on Training Session for Administrative Support Staff	Juvilyn Castañeda, Mary Grace Dy Jongco	Jan 21, 2010	Trader's Hotel, Roxas Boulevard, Pasay City
Annual Consultative Assembly of DOST Technical, Financial, and Administrative Officers for 2010 (Seminar-Workshop)	Atty. Carmencita Echano, Gay Bugagao, Amelia Esteban, Karen Felix, Mylene Monton	Jan 27-29, 2010	Crown Royal Hotel, Capitol Drive, Balanga Bataan
Gender and Development Mainstreaming Seminar and Staff Building	ASTI Staff	Feb 19, 2010	Loreland Farm Resort, Barangay San Roque, Antipolo City
Comprehensive Updates on the Implementation of RA 9184 Pursuant to the Revised Implementing Rules and Regulation	Ma. Irene Amatario	Feb 23-28, 2010	The Legend Hotel, Puerto Princesa City, Palawan
Seminar on the Revised Implementing Rules and Regulation on Government Procurement	Atty. Carmencita Echano, Gay Bugagao, Danny Hapin, Amelia Esteban, Karen Felix, Pinky Manio	Mar 12, 2010	LBP, Diosdado Macapagal Hall, M.H. del Pilar St., Malate, Manila
Seminar on Electronic Updating of the Personal Services Itemization-Plantilla of Personnel	Mylene Monton	Mar 17-19, 2010	Hotel Veniz, Baguio City
Seminar on Laws and Rules on Government Expenditures	Karen Felix	Apr 13-16, 2010	COA, Commonwealth, Q.C.
3rd Public Key Infrastructure Seminar	Emeterio Casera	Apr 15, 2010	Makati Shangri-La
Preparatory Japanese Language Training	Alvin Rettamar	Apr 12 - Jun 3, 2010	Lyceum of the Philippines, Makati City
Seminar-Workshop on Patent Search and Documentation	Ma. Irene Amatario	May 26-28, 2010	Intellectual Property Office of the Philippines, Sen. Gil Puyat Ave., Makati City
Workshop on Drafting the Implementing Rules and Regulations of RA 1005	Ma. Irene Amatario	Jun 3-4, 2010	PCARRD, Los Baños, Laguna
Solar Cells: Measurement, Device Physics, and Technologies Training	Gerwin Guba, Bryan Pater, Neil Xavier Elpa	Jun 8-9, 2010	Ateneo de Manila University, Q.C.
Seminar/Forum on Government Supply Management-Custodianship of Government Property and Disposal and Appraisal of Assets	Danny Hapi, Emma Juco, Neil Xavier Elpa, Francisco Ismael Jr.	Jun 16-19, 2010	Bayview Hotel, Roxas Boulevard, Pasay City

Title	Participants	Date	Venue
Training on Advanced Optic Fiber and Wireless Network Technology	Romeo Paras	Jun 28-30, 2010	Executive Lounge, Veterans Center Building, Camp Gen. Emilio Aguinaldo, Q.C.
Achieving Integrity in the Civil Service through Effective Human Resource Management	Mylene Monton	July 9, 16, 23, 30, 2010	NCPAG Building, U.P. Diliman, Q. C.
Energy Audit Training Course	George Mesina	July 26-28, 2010	University Hotel, UP Diliman, Q.C.
Understanding the Implementing ISO 9001:2008 Quality Management System	Allisonne delos Santos	Sep 7-8, 2010	CIP Training Room, OMM Citra Building, San Miguel Avenue, Ortigas Center, Pasig City
Effective Internal Auditing to ISO 9001:2008	Mary Grace Dy Jongco, Rene Mendoza	Sep 23-24, 2010	
Responding to the Call for Change	Atty. Carmencita Echano, Gay Bugagao, Karen Felix	Sep 29 - Oct 2, 2010	Alicia Hotel, Legaspi City
Philhealth Orientation-Seminar	ASTI Staff	Sep 29, 2010	ASTI Training Room
Employees Compensation Commission Orientation-Seminar		Oct 4, 2010	ASTI Training Room
GSIS Orientation-Seminar		Oct 28, 2010	ASTI Training Room
Leave Administration Course for Effectiveness	Karen Felix, Mylene Monton	Nov 9-10, 2010	National Housing Authority, Q.C.
DOST-HRDP In-house Training on Total Quality Management	Allisonne delos Santos, Anita Caser	Nov 10-11, 2010	DOST Executive Lounge, DOST Compound, Bicutan, Taguig City



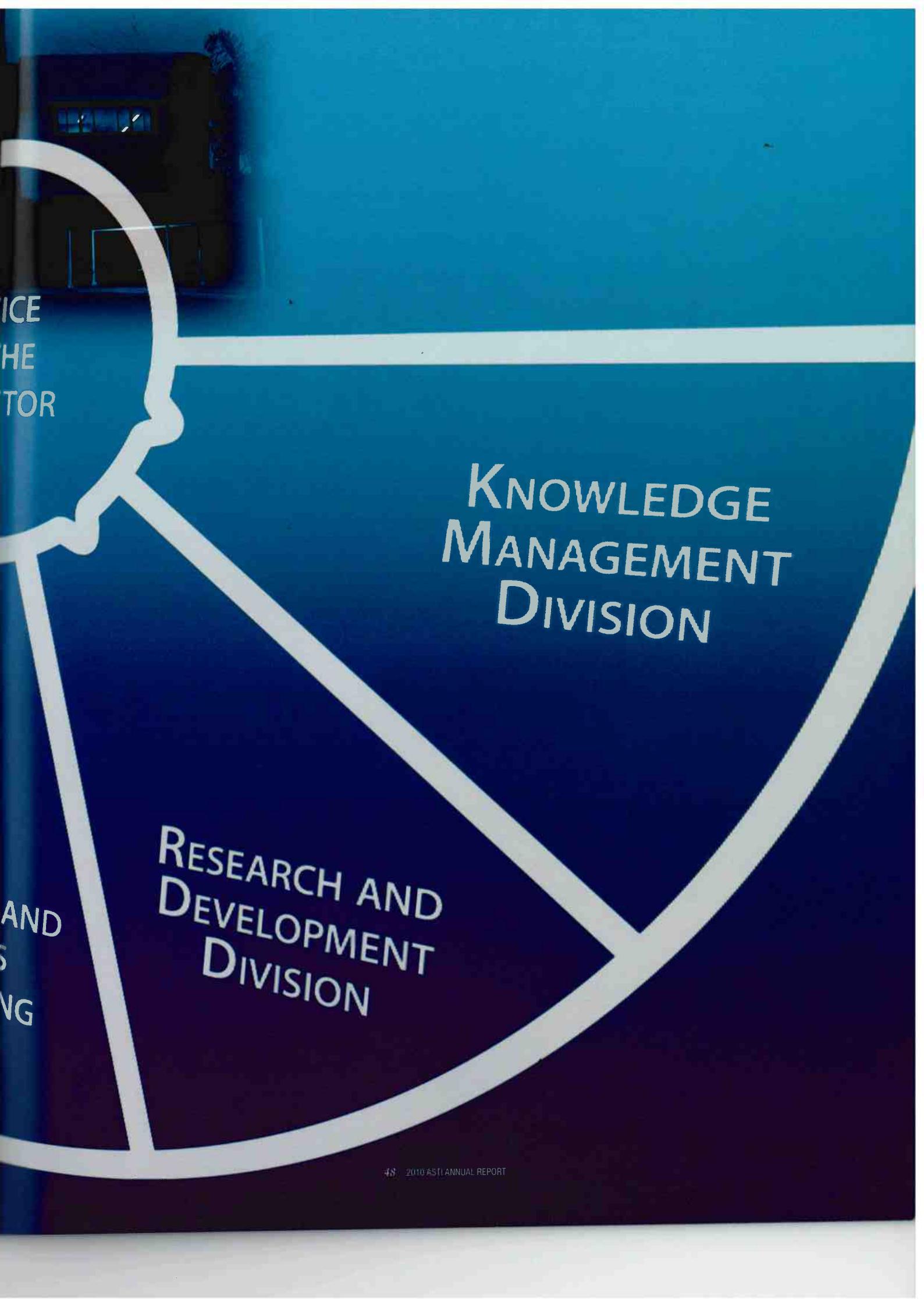


# 2010 ASTI Officials

(left to right)  
Floyd Antonio B. Danzon (Chief, Research and Development Division)  
Jovonne G. Syjuco (Chief, Computer Software Division)  
Dante L. Villanueva (Director)  
Jorge Eric S. Maglangue (Chief, Knowledge Management Division)  
Ally Camenchita M. Echano (Chief, Finance and Administrative Division)  
Bayani Bengzon R. Luis (CIO, Solutions and Services Engineering Division)

# Organizational Structure





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KNOWLEDGE  
MANAGEMENT  
DIVISION

RESEARCH AND  
DEVELOPMENT  
DIVISION

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KNOWLEDGE  
MANAGEMENT  
DIVISION

# OD

Office of the Director





The Office of the Director (OD) oversees the overall welfare of the agency as it sets the agency's strategic direction, formulates internal policies, and ensures implementation to attain goals and objectives. This group is also responsible for the planning and monitoring of research programs/projects and other activities of the agency, setting of performance indicators and evaluation of agency performance based on the formulated indicators. Since the human resource development is under OD, this division oversees the development of the competencies and expansion of the capabilities of the agency.

Other activities entrusted to the Office of the Director include establishment and sustaining partnerships and linkages with DOST and external organizations on R&D and technology transfer activities as well as scouting for possible funding sources for the agency's different programs.

# FAD

Finance & Administrative Division

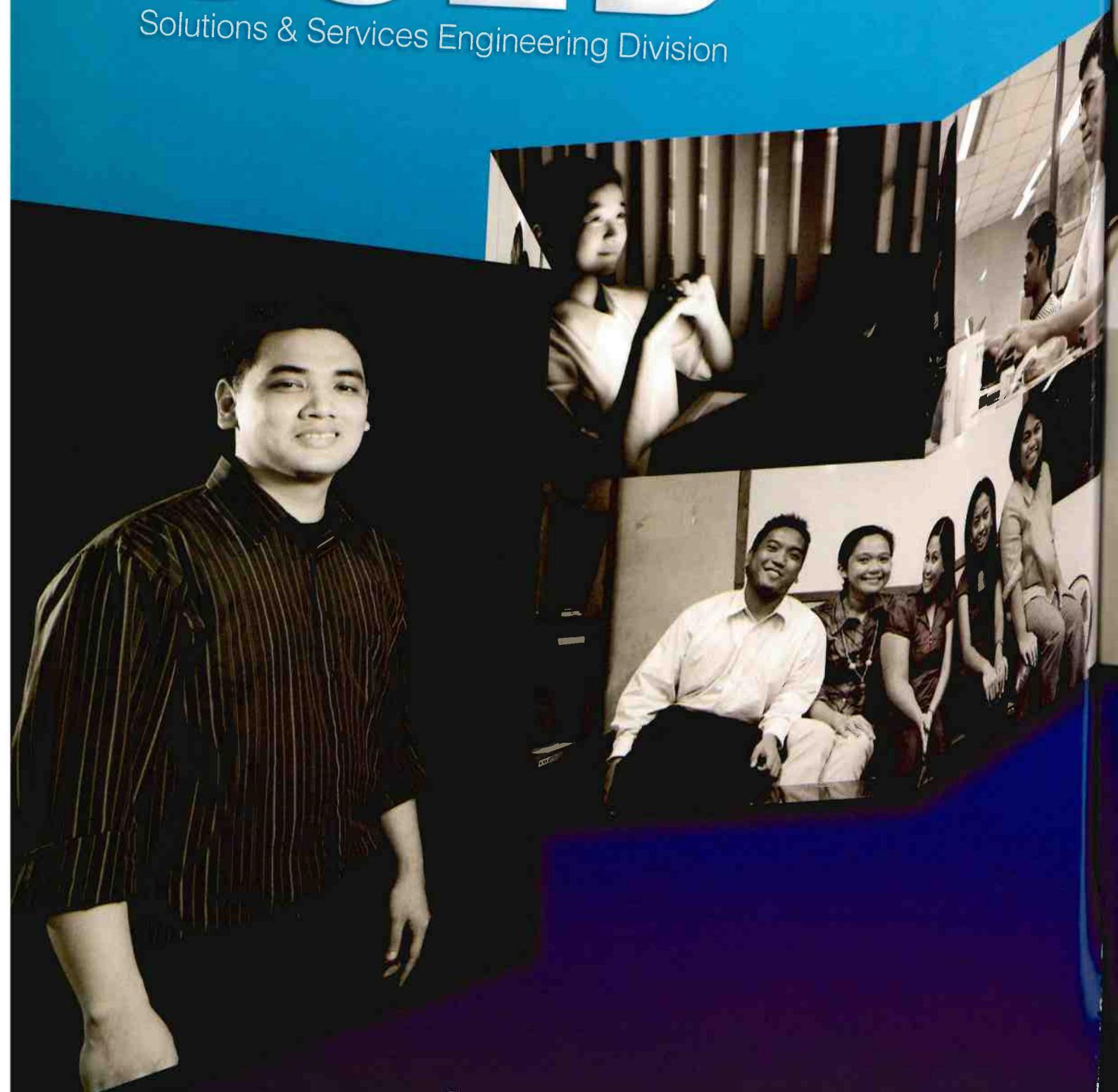




The Finance and Administrative Division (FAD) provides support and the necessary services for the welfare of the agency and its staff. It advises and assists the Director on budgetary, financial and management matters. It also provides the Institute with economical, efficient and effective services relating to personnel, supplies, equipment, collections, disbursement, security and custodial work.

# SSED

Solutions & Services Engineering Division





The Solutions and Services Engineering Division (SSED) is the agency's center for contracted engineering and design work. It handles, supports, and markets various solutions and services. The division is composed of the Embedded Systems Group (ESG), the PREGINET, the K-Agrinet and the Business Development Unit (BDU).

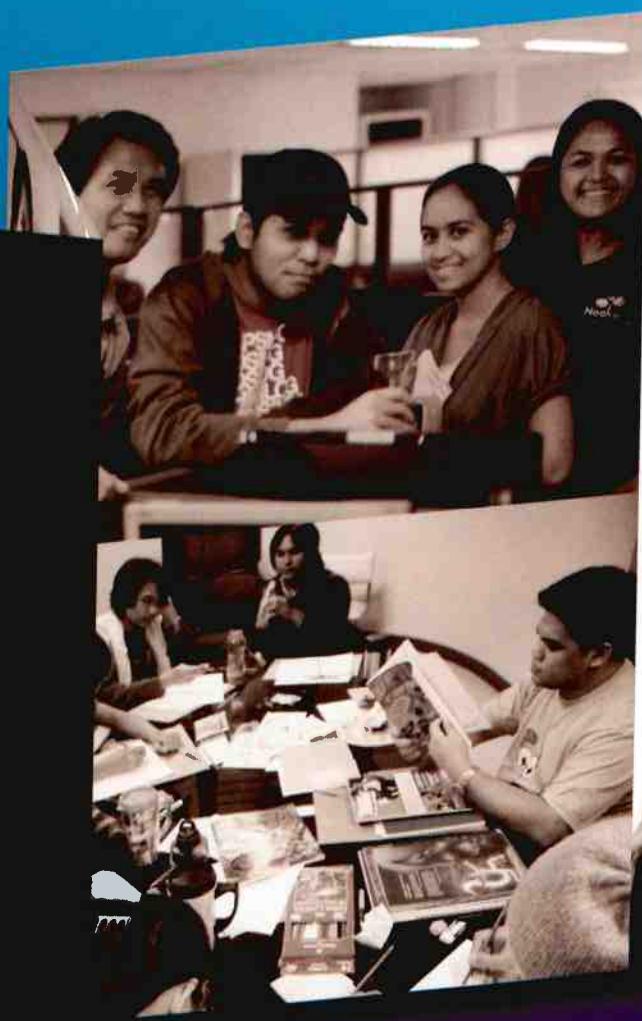
The ESG is responsible for developing holistic embedded solutions for clients that incorporate microcontroller-based design, communication, graphical user interface, and applications.

The PREGINET operates and maintains the country's only nationwide research and education network and provides network services such as VoIP, IPv6, videoconferencing and other similar services.

The recently established BDU is envisioned to drive commercialization efforts through effective market research and communication. To complement these efforts and gain momentum to drive its activities, SSED actively seeks collaborations to effectively serve more clients from the academe, government, and industry.

# CSD

Computer Software Division

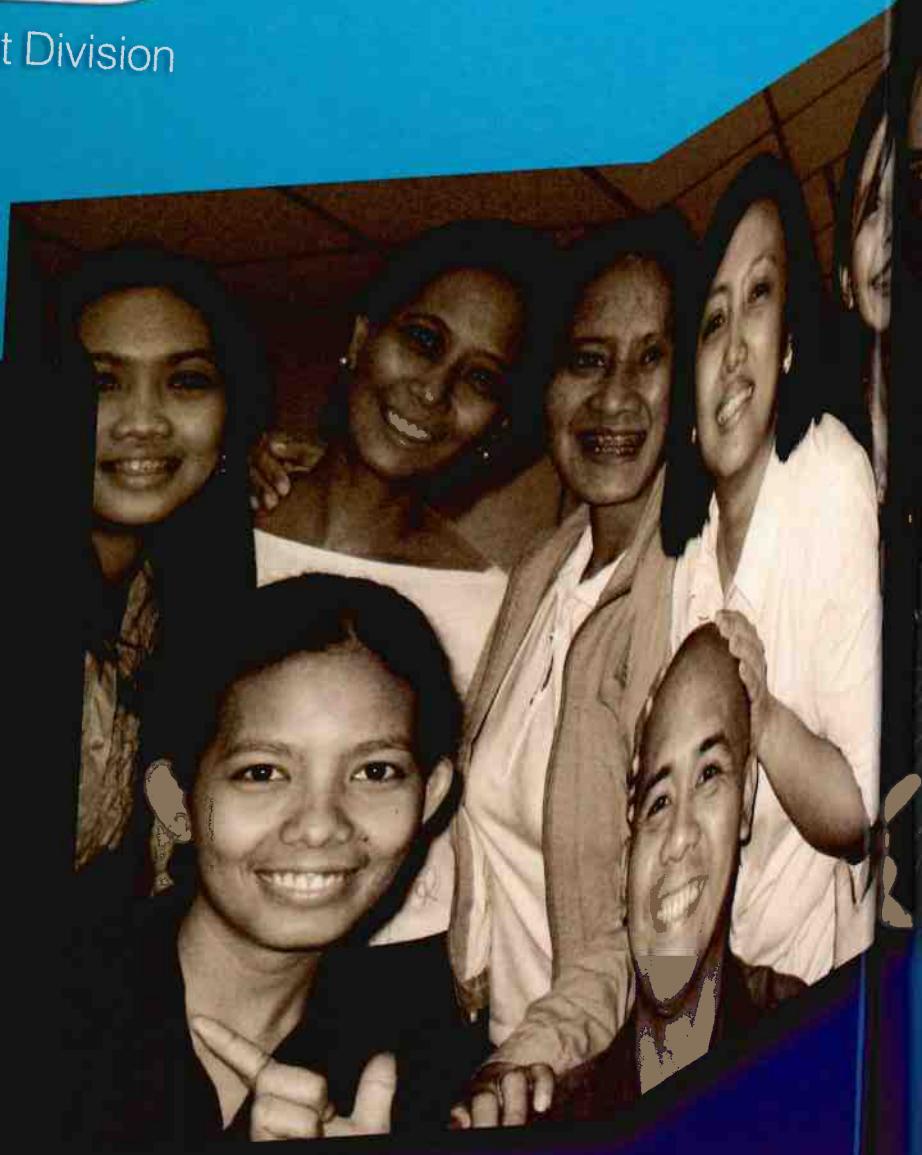
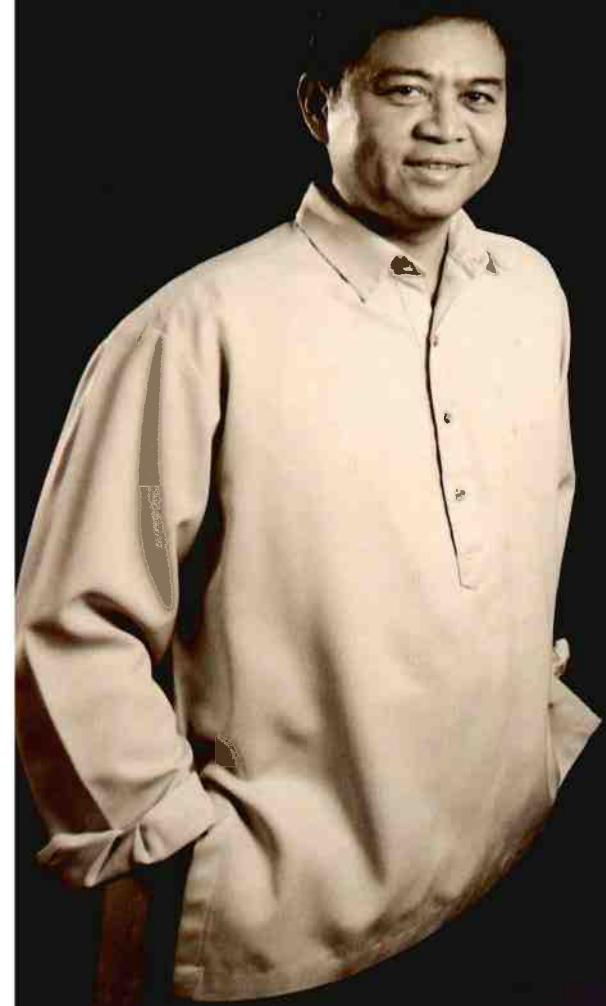




The Computer Software Division (CSD) aims to provide innovative and reliable software systems and applications. It will forge and strengthen partnerships with the academe, government, and industry by providing effective software solutions, software design and development consultancies, and contract researches.

# RDD

Research & Development Division





The Research and Development Division (RDD) conducts strategic R&D in ICT and Electronics taking direction from the national S&T Plan as well as ICT and Electronics industry development roadmaps. The division is divided into three sections, namely: Network Research, Computing Research, and Microelectronics Research. The Network Research Section implements R&D projects in the fields of advanced networking and wireless technologies that are necessary for the design and implementation of innovative advanced networking products/services and wireless communications systems.

The Computing Research Section focuses on projects involving various computing technologies such as Open Source and Grid Computing which are significant in the development of software and firmware products.

The Microelectronics Research Section prioritizes research activities that will establish the design foundation and know-how vital for the country's entry into the local and global market for integrated circuits and embedded products and solutions.

# KMD

Knowledge Management Division





The Knowledge Management Division (KMD) is created for the purpose of increasing and better leveraging ASTI's available intellectual capital and enable the Institute to continuously improve its performance through reuse of knowledge.

The team is **expected** to carry out the following functions:  
a) Source, mine, synthesize, and package knowledge

for internal and **external** use; b) Leverage knowledge to improve organizational performance of the agency; c) Proactively share knowledge for development impact; and d) Leverage KM as an integrating component for selected technology solutions.

## TRANSFER BENEFICIARIES (COMMERCIALIZED)

Address	TECHNOLOGY/IES TRANSFERRED		PERIOD OF ENGAGEMENT		RESPONSIBLE AGENCY STAFF	BENEFICIARY
	Name of Technology	Description	Start	End		
06, House of Representative, 7A, One Joromo Congressional, Quezon City	GSM Data Terminal (USB format)	fabrication/direct sale	Q1	Q1	Gerwin Guba	Various professionals
Compound, Bicutan, Taguig City	GSM Data Terminal (PCI format)	fabrication/direct sale	Q1	Q1	Gerwin Guba	Various professionals
Academic Building no. 80, 3 Street, Brgy. 10, Q.C.	ASTI Information System	customization of the ASTI-Developed Information System	Q1	Q1	Emily R. Pagador	
	BL CD sale (P130), Monsteven Carpio, for private use	direct sale/copying services	Q1	Q1	Emman Balintec	Various professionals
	GSM PCI interface	fabrication/direct sale	Q2	Q2	Gerwin Guba	
	GSM Data Terminal Unit	fabrication/direct sale	Q2	Q2	Gerwin Guba	
	Digital Multimeter (FP705)	direct sale of units by Alexan Commercial	Q1	Q4	Gerwin Guba (ASTI), Dr. Marina Alipon (FPRDI), Mr. Alex Sy (Alexan Commercial)	Institute of Biology / National
	Digital Wood Moisture Meter	direct sale of units by FPRDI / Alexan Commercial	Q1	Q4	Gerwin Guba (ASTI), Dr. Marina Alipon (FPRDI), Mr. Alex Sy (Alexan Commercial)	Various professionals
Condo, 54 Road, Road 8, Project	GSM Data Terminal Unit (PCI format)	fabrication/direct sale	Q3	Q3	Gerwin Guba	
Compound, Bicutan, City	ASTI Information System	customization of the Equipment Inventory System Module	Q4	Q4	Emily R. Pagador	Eastern University
City	ASTI Information System	customization of the Information System	Q4	Q4	Emily R. Pagador	Access University

## TRANSFER BENEFICIARIES (DIFFUSION)

Address	TECHNOLOGY/IES DIFFUSED		PERIOD OF ENGAGEMENT		RESPONSIBLE AGENCY STAFF	BENEFICIARY
	Name of Technology	Description	Start	End		
Compound, Bicutan, Compound, Bicutan, Sur, Nasugbu, Cavite	ASTI Information System	Presentation of ASTI Information System	Q4	Q4	Emily R. Pagador	DepEd / National Academy of NEAP
	ASTI Information System	Presentation of ASTI Information System	Q1	Q1	Emily R. Pagador	
	Bayanihan Linux, Embedded Systems	Product / Technology Talk	Q1	Q1	Emman Balintec, Maria Cristina, Manuel	
	Bayanihan Linux, Embedded Systems, Courseware	Product / Technology Talk	Q1	Q1	Emman Balintec, Maria Cristina, Manuel, Arlene Punzalan	

# MFO Data

CIALARY		TECHNOLOGY/IES DIFFUSED		PERIOD OF ENGAGEMENT		RESPONSIBLE AGENCY STAFF
Enterprise	Address	Name of Technology	Description	Start	End	Name
Individuals/ nals/students	Baguio City	Bayanihan Linux	CD distribution during 2009 Northern Luzon Cluster Exhibit in Baguio City held on Feb. 2010	Q1	Q1	Pedrito B. Mangahas
Individuals/ nals/students	-	Bayanihan 5, eDOST- Infosys, eDOST-Infra, eDOST-Open Standards, GSM, PicMe, PREDICT, EWST, ASTI Infosys, Trainings offered, Courseware, PREGINET, Open TBI, ASTI Programs & Projects	Product/technology talk and exhibit participation during the Northern Luzon Cluster Exhibit held in Puerto Princesa, Palawan	Q1	Q1	Emma P. Juco
Individuals/ nals/students	-	Bayanihan Linux, Trainings Offered, Embedded Systems, Open TBI	Product/technology talk and exhibit participation during TRC's event, "TRC Techno-Partnering Forum" held on Feb. 22-24, 2010 at the PTTC, Roxas Blvd.	Q1	Q1	Pedrito B. Mangahas
Institute of Molecular & Biotechnology - Institute of Health	UP Manila	Grid Computing Using Reconfigurable Hardware Technology; Social and Technological Capabilities for Bioinformatics Research	Presentation of ASTI's grid efforts	Q1	Q1	Jelina Tetangco
Individuals/ nals/students	-	Early Warning System for Tsunami, PREDICT, FMON, Embedded Systems and Services	Exhibit participation during "the DOST Exposition & Conference on Environmentally Sound Technologies" held on June 8-11, 2010 at the Ayala Center Cebu	Q2	Q2	Ma. Cristina N. Manuel
Visayas State U	Tacloban City	Trainings Offered, Embedded Systems, Bayanihan Linux	Educational Tour	Q3	Q3	Pinky R. Manio
Computer College	Camarin, Caloocan City	Trainings Offered, Embedded Systems, Bayanihan Linux	Educational Tour	Q3	Q3	Pinky R. Manio
Individuals/ nals/students	-	Bayanihan Linux	Bayanihan Linux Forum	Q3	Q3	Emman Balintec
Individuals/ nals/students	-	Bayanihan 5, eDOST- Infosys, eDOST-Infra, eDOST-Open Standards, GSM, PicMe, PREDICT, EWST, FMON, ASTI Infosys, Trainings offered, Courseware, PREGINET, Open TBI, ASTI Programs & Projects	Product/technology talk and exhibit participation during the 2010 NSTW at the Centennial Hall, Manila Hotel	Q3	Q3	Pedrito B. Mangahas
Officials and Educators y of the Philippines	DepEd Complex, Meralco Ave., Pasig City	ASTI Programs / Products / Agency Visits / Technologies	Product / Technology Talk	Q2	Q2	Pinky R. Manio

Technology/IES Diffused	Name of Technology	Description	Period of Engagement		Responsible Agency Staff
			Start	End	
Bayanihan 5, eDOST- Infosys, eDOST-Infra, eDOST-Open Standards, GSM, PicMe, PREDICT, EWST, FMON, ASTI Infosys, Trainings offered, Courseware, PREGINET, Open TBI, ASTI Programs & Projects	Trainings Offered, Bayanihan Linux	Product/technology talk and exhibit participation during the 2010 Regional S&T Fair (Norther Luzon Cluster) held at the Univ. of La Salle, Santiago City, Isabela	Q3	Q3	Pedrito B. Mangahas
	Trainings Offered, Bayanihan Linux	Exhibit participation and product / technology talk / demo during the 3rd House of Representatives FOSS Week held at the House of Representatives, Batasan	Q3	Q3	Pedrito B. Mangahas
	Trainings, BL	Exhibit participation and product / technology talk / demo during the "Software Freedom Day" held at the ADMU	Q3	Q3	Emman Balintec
	BL, ASTI projects and programs	Exhibit participation and product / technology talk during the Asian College S&T (ACSAT) Founding Anniversary held at ACSAT in Caloocan City	Q3	Q3	Emman Balintec
	AIB, PREGINET	Product presentation held in ASTI	Q4	Q4	Shanta Velasquez
	Bayanihan 5, eDOST- Infosys, eDOST-Infra, eDOST-Open Standards, GSM, PicMe, PREDICT, EWST, FMON, ASTI Infosys, Trainings offered, Courseware, PREGINET, Open TBI, ASTI Programs & Projects	Product/technology talk and exhibit participation during the Mindanao Cluster S&T Fair held at the Rotunda of Limketkai Center, Cagayan de Oro City	Q4	Q4	Pedrito B. Mangahas
	Trainings, Embedded systems, TBI, BL	Exhibit participation during the IECEP (Int'l. Electronics Conference & Expo Philippines) 60th Annual Convention held at the SMX Convention Center	Q4	Q4	Pedrito B. Mangahas
	Water level sensor, Embedded systems	Exhibit participation during the event "Empowering Partners & Practitioners in FEWS(Flood Early Warning system) held at the Lancaster Hotel, Mandaluyong City	Q4	Q4	Maria Cristina Manuel
	Trainings Offered, BL, Embedded systems	Exhibit participation during the 2010 World Robot Olympiad (WRO) held at the SMX Convention Center	Q4	Q4	Pedrito B. Mangahas
	PREGINET	Product presentation	Q4	Q4	May Cayaban

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# MFO Data

CIARY		TECHNOLOGY/IES DIFFUSED		PERIOD OF ENGAGEMENT		RESPONSIBLE AGENCY STAFF
Enterprise	Address	Name of Technology	Description	Start	End	Name
Individuals/		BL 5 Desktop, BL Linux 5 for Govt, BL 5 Add-Ons	Downloading of different Bayanihan Linux versions / enhancements	Q1	Q1	Emman Balintero
Individuals/		Courseware modules	Downloading of Courseware modules	Q1	Q2	Arlene Punzalan
Individuals/		Digital Wood Moisture Meter	Product presentation for the National Invention Contests and Exhibits (NICE 2010)	Q4	Q4	Gerwin Guba
Agencies		eDOST Information Systems	Product presentation / demonstration	Q4	Q4	Reila Irinco

## 2. CONSULTANCY BENEFICIARIES

CIARY		TITLE OF CONSULTANCY SERVICES RENDERED		PERIOD OF ENGAGEMENT		FIELD STAFF
Enterprise/ Organization	Address	Start	End	Name		
Noy Organization Philippines	Rm. S-206, House of Representatives, QC	Product inquiry for GSM Data Terminal	Q1	Q1	Gerwin Guba	
Rep.		Product inquiry for GSM Data Terminal	Q1	Q1	Gerwin Guba	
Information System	7A One Joroma Place, Congressional Avenue, QC	Product inquiry for GSM Data Terminal	Q1	Q1	Gerwin Guba	
leg. VI (PPSMIS Division)	Iloilo City	Product inquiry for GSM Data Terminal	Q1	Q1	Gerwin Guba	
ative Insurance Systems of Philippines	West Avenue Delta Building Room 300, Quezon City	Product inquiry for GSM Data Terminal	Q1	Q1	Gerwin Guba	
ital Technologies Corp.		Product inquiry for GSM Data Terminal	Q1	Q1	Gerwin Guba	
ndividuals / Professionals		Product inquiry for GSM Data Terminal	Q1	Q1	Gerwin Guba	
ndividuals / Professionals		Product inquiry for PicMe Microcontroller Kit	Q1	Q1	Gerwin Guba	
lege Southwoods	Maduya, Carmona, Cavite	Product inquiry for PicMe Microcontroller Kit	Q1	Q1	Gerwin Guba	
ndividuals/professionals		Product inquiries re: Bayanihan Linux (i.e., installation and upgrades, multimedia, networking, security, general questions)	Q1	Q1	Emman Balintero	
ndividuals/professionals		Product inquiries on Open Source, Microelectronics, Joomla CMS Training, Introduction to Embedded Systems (i.e. embedded systems software architecture, real-time embedded systems, design development of embedded systems), Introduction to VHDL, MySQL for Developers Training, BL for Users and Administrators	Q1	Q1		
OP Consortium members (representatives)	c/o ASTI Training Unit	Conduct of SEACOOP Consortium Meeting at the Mactan Shangri-la Resort and Spa	Q2	Q2	Ma. Ryne Amatorio	
overnment Office	Rizal	Product inquiries re: PCI GSM Data Terminal Kit	Q2	Q2	Gerwin Guba	
EC	Manila	Technical preparations for Automated Special Elections	Q4	Q4	Rage Caliao, Hertz Ventura	
RO VII	Cebu City	Roundtable discussion on the formation of a Cebu Exchange	Q4	Q4	May Cayaban	

BENEFICIARIES	
	Name of Entity
SS	Court Appeals
vide	TBI Incubator
n City	Itemhound; I
Compound, Bicutan, City	Open-Source
Ecija	Xynyx Design & Services,
Norte	Solutions Techno Corporation
mando, Pampanga	Metahelix; C
mando, La Union	Serbizyo; L
Compound, Bicutan, City	Mgmt, Inc. (
Compound, Bicutan, City	Uniltech; W
City	Technologie
hor	Solutions R
Bldg., Macapagal Ave., City	information
Bldg., Punta Tabuc, City	Management
es, Cor. Morayta St., Bc, Manila	(ILMSI)
Avd., Pasay City	DNS-regis
	stitutions

TABLE 4

TITLE OF PROJECT	
	Boosting
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	Hardware
	(HPRC)
	Boosting
	Technolo
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	Research
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	and Mit
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	Monitor
	System
	Upgrad

BENEFICIARIES	TECHNICAL SERVICES RENDERED	PERIOD OF ENGAGEMENT		FIELD STAFF
		Start	End	
vide	Continuous maintenance of network infrastructures of PREGINET / K-AGRINET partner-institutions	Q1	Q4	PREGINET Team c/o May Cayaban
n City	Technical support for Surgical Teleconference at APAN-Sydney using DVTS	Q1	Q1	PREGINET Team c/o May Cayaban
Compound, Bicutan, City	Videostreaming for National Ipv6 Forum at CICT	Q1	Q1	PREGINET Team c/o May Cayaban
Ecija	Setting up of VoIP and network; network troubleshooting	Q2	Q2	PREGINET Team c/o May Cayaban
Norte	Network link testing/checking assistance in videocon and voip	Q2	Q2	K-AGRINET Team c/o Geraldine Oña
mando, Pampanga	LAN assessment, link testing of videocon equipment and IP phone	Q2	Q2	K-AGRINET Team c/o Geraldine Oña
mando, La Union	LAN assessment, link testing of videocon equipment and IP phone	Q2	Q2	K-AGRINET Team c/o Geraldine Oña
Compound, Bicutan, City	Checking of interconnectivity/network assessment	Q2	Q2	PREGINET Team c/o May Cayaban
Compound, Bicutan, City	Checking of interconnectivity/network assessment	Q2	Q2	PREGINET Team c/o May Cayaban
City	Webstreaming services during the 2010 NSTW at the Centennial Hall, Manila Hotel	Q3	Q3	PREGINET Team c/o May Cayaban
hor	Videostreaming during the 32nd Annual Scientific Meeting at the Manila Hotel	Q3	Q3	PREGINET Team c/o May Cayaban
	Technical support during the 3rd Joint Project Team Meeting (JPTM) held in the Philippines	Q3	Q3	PREGINET Team c/o May Cayaban
	Videostreaming for Senate Budget Hearing	Q4	Q4	PREGINET Team c/o May Cayaban
	Videostreaming for TBI's "Internet Marketing Today" Training	Q4	Q4	PREGINET Team c/o May Cayaban
	Videostreaming of UNTL's Inauguration via SOI	Q4	Q4	PREGINET Team c/o May Cayaban
	Videoconferencing for Philippines and Korea during the "Korea-Philippines Family Video Reunion" held at ASTI	Q4	Q4	PREGINET Team c/o May Cayaban
Bldg., Macapagal Ave., City	Webhosting services	Q4	Q4	PREGINET Team c/o May Cayaban
Bldg., Punta Tabuc, City	Webhosting services	Q4	Q4	PREGINET Team c/o May Cayaban
es, Cor. Morayta St., Bc, Manila	Webhosting services	Q4	Q4	PREGINET Team c/o May Cayaban
Avd., Pasay City	Webhosting services	Q4	Q4	PREGINET Team c/o May Cayaban
	Network maintenance	Q4	Q4	PREGINET Team c/o May Cayaban
	Interconnectivity	Q4	Q4	PREGINET Team c/o May Cayaban
	Network maintenance	Q4	Q4	PREGINET Team c/o May Cayaban
	Interconnectivity	Q4	Q4	PREGINET Team c/o May Cayaban

# MFO Data

Enterprise/ Organization	Address	Technical Services Rendered	Period of Engagement		Field Staff
			Start	End	
Philippine Consultancy Inc; East Asia Technologies TechFarm; OrchestraX; LeanTECH; Broadcast LifeCycle Management Systems, Inc. erred government	Maria Orosa Street, Ermita 1000, Manila UP Technology Park Complex, C.P. Garcia Ave., UP Campus, Diliman, Quezon City	Server collocation Maintenance of network accounts DNS services: registration, approval, modification, deletion; Maintenance of Domains (backup, etc.); Inquiries on login information	Q4 Q1	Q4 Q4	PREGINET Team c/o May Cayaban PREGINET Team c/o May Cayaban Emily R. Pagador

## R&D PROJECTS IMPLEMENTED

R&D Project	Socio-Economic Objective	Project Duration		Project Leader		2010 Expenditure	Funding Source	Status
		Start	End	Name	Email			
Grid Computing Configurable Technology	Access to information	Jan 2008	June 2011	May Grace C. Dy Jongco	gracerdj@asti. dost.gov.ph	8,158,200.88	DOST-GIA	On-going
Social and Technical Capabilities Informatics	Access to information	Jan 2008	Dec 2010	Peter Antonio B. Banzon	peter@asti. dost.gov.ph	720,602.97	DOST-GIA	Completed
Grid Systems and Enable Logic Development (plus)	Access to information	June 2001	continuous	Alvin Retamar	ning@asti. dost.gov.ph		ASTI	On-going
Real-time Event Data Collection and Correlation for Related Tragedy (ICT) Prevention Program	Access to information	Jan 2008	June 2010	Alvin Retamar	ning@asti. dost.gov.ph	395,524.98	DOST-GIA	Completed
INFRA: Setting of DOST Infrastructure and Connectivity Network	Access to information	Jan 2008	Dec 2011	Bayani Benjamin R. Lara	bari@asti. dost.gov.ph	13,139,726.27	DOST-GIA	On-going
Development of a Field Monitoring (FMON)	Access to information	Jan 2009	Dec 2011	Denis F. Villoronte	denis@asti. dost.gov.ph	1,868,586.72	DOST-GIA	On-going
Setting of Facilities of Information	Access to information	July 2007	Dec 2010	Peter Antonio B. Banzon	peter@asti. dost.gov.ph	8,692,370.16	DOST-GIA	Completed

# MFO Data

TITLE OF R&D PROJECT	SOCIO-ECONOMIC OBJECTIVE	PROJECT DURATION		PROJECT LEADER		2010 EXPENDITURE	FUNDING SOURCE	STATUS
		Start	End	Name	Email			
Information Systems Component: eDOST-INFOSYS: Upgrading and Development of DOST Information Systems	Access to information	Jan 2008	June 2011	Joanna Syjuco	joan@asti.dost.gov.ph	5,120,726.30	DOST-GIA	On-going
"e-DOST- Open Standards: Program and Change Management and Implementation of Open Standards to DOST" (Jan 2008 – June 2011)	Access to information	Jan 2008	June 2011	Emman Balintec	emman@asti.dost.gov.ph	2,853,204.39	DOST-GIA	On-going
Development of Interactive Science and Mathematics Courseware for Secondary Level Schools (Oct 1, 2008 – Dec 31, 2012)	Access to information	Oct 2008	Dec 2012	Joanna Syjuco	joan@asti.dost.gov.ph	10,586,809.73	DOST-SEI	On-going
Knowledge Networking Towards Enterprising Agricultural Communities (K-AGRINET); e-Farm & e-Consortia (Dec 1, 2005 – Dec 31, 2010)	Access to information	Dec 2005	Dec 2010	Denis F. Villorente	denis@asti.dost.gov.ph	4,972,554.64	CICT (thru Development Academy of the Philippines)	Completed
Establishment of DOST-PEZA Open Technology Business Incubator	Access to information	Jan 2008	July 2011	Peter Antonio B. Banzon	peter@asti.dost.gov.ph	897,103.20	DOST-GIA	On-going
EUAsia Grid - Towards a common e-Science infrastructure for the European and Asian Grids	Access to information	April 2008	June 2010	Project Coordinator: Peter Antonio B. Banzon	peter@asti.dost.gov.ph		European Commission	Completed
SEALING (Support to policy dialogues and strengthening of cooperation with Southeast Asia)	Access to information	Jan 2010	Dec 2011	Denis F. Villorente	denis@asti.dost.gov.ph	1,233,592.39	European Commission	On-going
Multicast Experiment using the WINDS Satellite	Access to information	Oct 2008	continuous	Denis F. Villorente	denis@asti.dost.gov.ph		ASTI	On-going (operations only)
Tests, Analyses, and Calibration Information Systems (TACIS)	Industrial production and technology	Dec 2008	Dec 2010	Peter Antonio B. Banzon	peter@asti.dost.gov.ph	578,128.66	DOST-CICT (e-gov fund)	Completed
Customization of a Linux-based Embedded Operating System for the VSX-6154 system board	Access to information	April 2010	Nov 2010	Denis F. Villorente	denis@asti.dost.gov.ph		Micrologic Systems, Inc.	Completed
Development of Hybrid Weather Monitoring System and Production of Weather and Automated Stations (AWS)	Access to information	Sept 2010	Aug 2011	Denis F. Villorente	denis@asti.dost.gov.ph	605,387.41	DOST-GIA	New
Quantified Flood Forecasting Through Rain Rate Estimation Using Satellite Imagery & Generalized Watershed Runoff Calculations (Joint project between UP NIGS, ASTI, & PAGASA)	Access to information	Nov 2010	Nov 2011	ASTI Project Manager: Jelina Tetangco; Proj. Leader: Dr. Carlos Primo G. David (UP NIGS)	jeng@asti.dost.gov.ph		PCIEERD	New

# MFO Data

TITLE OF R&D PROJECT	SOCIO-ECONOMIC OBJECTIVE	PROJECT DURATION		PROJECT LEADER		2010 EXPENDITURE	FUNDING SOURCE	STATUS
		Start	End	Name	Email			
Research Study on Low-Cost Computing Solutions for Primary Education – Phase I (PC Tablet)	Access to information; Access to information	Dec 2010	Mar 2011	Peter Antonio B. Banzon	peter@asti.dost.gov.ph		DOST-GIA	New
Development and Commercialization of Locally Designed Digital Moisture Meter for Bamboo and Other Non-Timer Products (Joint Project of FPRDI and ASTI)	Access to information; Access to information	Dec 2008	Dec 2010	Project Leader from FPRDI; ASTI Lead Staff; Alvin Retamar	ning@asti.dost.gov.ph	593,660.91	DOST-FPRDI	Completed
Integrative Bioinformatics: Data Warehousing for Microbial Information	Access to information; Access to information	Feb 2010	July 2011	ASTI Project Manager: Jelina Tetangco; Project Leader from UPLB-National Institute of Molecular Biology and Biotechnology (BIOTECH)	jeng@asti.dost.gov.ph		DOST-GIA	New

TABLE 5. PERSONNEL PROFILE (REGULAR)

CATEGORY	NUMBER	% DISTRIBUTION
Total Number of Personnel (Headcount)	63	
<b>By Job Function</b>		
Administration and Management	30	48%
Technical	33	52%
<b>By Sex</b>		
Male	31	49%
Female	32	51%
<b>By Age Group</b>		
20 years old and below	~	~
21-30	33	52%
31-40	17	27%
41-50	11	18%
51-60	2	3%
60 years old and over	~	~
<b>By Educational Attainment</b>		
With PhD	~	~
Master's Degree	6	9%
Bachelor's Degree	52	83%
Others	5	8%

# MFO Data

TABLE 6. INTELLECTUAL PROPERTIES FILED/GRANTED

TITLE/DESCRIPTION OF INTELLECTUAL PROPERTY	APPLICATION/REGISTRY NO.	TYPE OF IP* (ENTER CODE)	NAME OF RESEARCHER/INVENTOR	STATUS	DATE FILED/GRANTED
Handbook of Practical Tips in FPGA-Based Design Using VHDL	A 2005-2507	Copyright	Jose Redentor A. Gilfomea, Carmelo D. Cayaban, Rowena D. Saldaña	Granted	Dec 8, 2005
Self-Paced Learning Modules for Digital and Analog Integrated Circuit Design Courses (Unit 1-4, and Laboratory Manual)	A 2006-3242	Copyright	Mary Grace C. Dy Jongco, Jeffreyk S. Mendiola, Aaron S. Cabuling, Benson T. Siongco	Granted	Nov 15, 2006
Bayanihan Linux Thin Client Manager Software	N 2005-185	Copyright	Peter Antonio B. Banzon, Joanna S. Gonzales, Joseph F. Syjuco, Geraldine I. Lugod, Aryl V. Betan, Ryan Joshua B. Asuncion, Rusnell A. Espinoza	Granted	Dec 8, 2005
User Manual: Bayanihan Linux Thin Client Manager, Your Total Linux Thin Client Solution	A 2005-2508	Copyright	Peter Antonio B. Banzon, Joanna S. Gonzales, Joseph F. Syjuco, Geraldine I. Lugod, Aryl V. Betan, Ryan Joshua B. Asuncion, Rusnell A. Espinoza	Granted	Dec 8, 2005
Bayanihan Linux 4 Manual	A 2007-875	Copyright	Jaime Sebastian G. Sicam, Janice M. Ballesteros, Emmanuel P. Balintec, Katrina T. Murga, & Janice C. Carpo	Granted	Apr 25, 2007
User Guide Digital Wood Moisture Meter: FA507	0 2008-31	Copyright	Marina A. Alipon, Gil B. Dolotina, Gerwin P. Guba, Grecilda A. Eusebio, & Alvin E. Retamar	Granted (ASTI/FPRDI)	Oct 9, 2008
Digital Wood Moisture Meter	2-2009-000048	Utility Model	Marina A. Alipon, Gil B. Dolotina, Gerwin P. Guba, Grecilda A. Eusebio, & Alvin E. Retamar, Alexander E. Sy	Granted (ASTI/FPRDI)	Aug 17, 2009
FPRDI FA507 Wood Moisture Meter	4-2009-001908	Trademark	Marina A. Alipon, Gil B. Dolotina, Gerwin P. Guba, Grecilda A. Eusebio, & Alvin E. Retamar	Granted (ASTI/FPRDI)	Jul 9, 2009
Solar-Powered, GSM-Based Tsunami Audio-Visual Alarm System	2-2010-000442	Utility Model	Alvin E. Retamar, Gerwin P. Guba, Glenn Vincent C. Lopez, Harold Bryan S. Paler, Neil Xavier C. Elpa, Jeanette D. Badong	Filed	Sep 2, 2010

TABLE 7. SCIENTIFIC PAPERS PREPARED/PUBLISHED/PRESENTED

TITLE OF SCIENTIFIC PAPER	AUTHOR/S		DATE PREPARED/ PUBLISHED/ PRESENTED
	Name	E-Mail	
ASTI Stereoscopic 3-Dimensional Visualization Facility: A Low-Cost Facility in Aid of Scientific Research and Development	Marilyn V. Rey, Jelina Tanya H. Tetangco; Mary Grace C. Dy Jongco	gracedj@asti.dost.gov.ph; jeng@asti.dost.gov.ph	
FPGA-Based Implementation of a Ray-Triangle Intersection algorithm for Ray Tracing in Image Rendering	Nypho P. Pareño, Jay Randolph S. Ratunit, Mary Grace C. Dy Jongco	gracedj@asti.dost.gov.ph; jeng@asti.dost.gov.ph	Paper accepted for presentation in the upcoming HNICEM 2011(5th International Conference on Humanoid, Nanotechnology, Information Technology, Communication & Control, Environment, and Management 2011)
Grid Computing for Bioinformatics: An Implementation of a User-Friendly Web Portal for ASTI's Silico Laboratory	Rey Vincent P. Babilonia, Marilyn V. Rey, Emmanuel D. Aldea, Urizza Marie L. Sarte	gracedj@asti.dost.gov.ph; jeng@asti.dost.gov.ph	Paper presented via videoconferencing during the 2010 International Symposium on Grid Computing (ISGC) Conference, Mar. 5-12, 2010

# MFO Data

TABLE 8. TECHNICAL TRAINING COURSES CONDUCTED

TITLE OF TRAINING	TRAINING LOCATION			NO. OF PARTICIPANTS	INCLUSIVE DATES CONDUCTED	
	Venue	Municipality/City	Province		Start	End
Basic Networking/Basic Link Monitoring and Maintenance	BCARRD, Bicol Univ.	Legazpi City	Albay	6	Mar 8, 2010	Mar 11, 2010
Open Office 3.2 and Basic Internet Application Training	ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C.	Quezon City	Metro Manila	35	May 18, 2010	May 21, 2010
SEACOOP Networked Electronic Training / Forum	EDSA Shangri-La Hotel, Mandaluyong City	Mandaluyong City	Metro Manila	65	June 23, 2010	Jun 23, 2010
eDOST Awareness Seminar-Workshop	DOST Bicutan	Taguig City	Metro Manila	62	Apr 29, 2010	Apr 29, 2010
ASTI Day Seminars conducted:						
1. OpenSource Technology						
2. Bayanihan Linux						
3. Management Information System: e-Learning Courseware						
4. Embedded Systems Technology						
5. ICT for the Environment (EWST, PREDICT, FMON)						
6. High-Performance Computing: Philippine e-Science Grid;						
7. ICT Partnerships: SEACOOP & ASTI Trainings						
8. Advanced Network Technology						
9. PREGNENT (VoIP, Videoconferencing, Video streaming/ DVTS)						
EDOST Open Office 3.2 with Basic Internet Training (Batch 2)	Hotel Conchita	Cagayan de Oro City	Cagayan de Oro	31	Aug 3, 2010	Aug 6, 2010
OpenOffice.Org and Basic Internet Application Training (Batch 3)	Golden Valley Hotel	Cebu City	Cebu	20	Aug 31, 2010	Sept 3, 2010
Philippine e-Science Grid	ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C.	Quezon City	Metro Manila	37	Jul 2, 2010	Jul 2, 2010
Training on SPECFEM 3D_Globe Job Submission on PsclGrid	ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C.	Quezon City	Metro Manila	5	Jul 13, 2010	Jul 13, 2010
User Acceptance training for DSOIS, PSTHRIS, DCPIS, & DFEIS	ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C., PCARRD, Laguna	Quezon City	Metro Manila	174	Q3 (July 2010)	Q4 (Dec 2010)
VOIP, Open Office, Bayanihan Linux, PHP & MySQL, VoIP/SIP Administration, Basic Internet Training	ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C.	Quezon City	Metro Manila	91	Q1	Q4
Technical Training on VoIP/SIP Administration	ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C.	Quezon City	Metro Manila	14	Oct 12, 2010	Oct 15, 2010
PHP/MySQL Training for WMC (batch 1)	ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C.	Quezon City	Metro Manila	62	Oct 11, 2010	Oct 21, 2010

TRAINING LOCATION			NO. OF PARTICIPANTS	INCLUSIVE DATES CONDUCTED	
Venue	Municipality/City	Province		Start	End
ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C.	Quezon City	Metro Manila	62	Oct 11, 2010	Oct 21, 2010
ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C.	Quezon City	Metro Manila	36	Oct 22, 2010	Oct 22, 2010
CICT, NCC Bldg., C.P. Garcia Ave., UP Campus, Diliman	Quezon City	Metro Manila	5	Sept 14, 2010	Sept 17, 2010
DOST ROs in Visayas and Mindanao Cluster (DOST VII)			25	Oct 2010	Oct 2010
ASTI Bldg., UP Technology Park Complex, UP Campus, Diliman, Q.C.	Quezon City	Metro Manila	12	Nov 12, 2010	Nov 12, 2010

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## SCIENTIFIC LINKAGES AND NETWORKS

	LOCATION/ COUNTRY	NATURE /DESCRIPTION OF SCIENTIFIC LINKAGES
stry	Japan	MAFFIN provides funding support for the establishment and maintenance of the Philippines' link to the Asia-Pacific Advanced Network (APAN)
chnology to	Japan	SOI Asia (School of Internet-Asia); Asian Internet Interconnection Initiatives (AI3); Trainings; information exchange
PNIC)	United Kingdom	Trans-Eurasia Information Network 3 (TEIN3); Research and education connectivity to Europe and within the Southeast Asia region; Trainings and other capability building initiatives; information exchange
Information th Sigma ator)	Australia	Internet operation and management; regional networking activities; training; information exchange
A)	Belgium; France	Collaborative Project entitled Support to policy dialogues and strengthening of cooperation with Southeast Asia (SEALING Project)
(PRAGMA)	Japan	Multicast Experiment Using the Wideband InterNetworking Engineering Test and Demonstration Satellite (WINDS)
	USA	S&T Information Exchange through Grid Forum; ASTI as a member institution
	Italy (coordinating country)	Requirement capture and coordination policy definition, support of scientific applications, dissemination, and training; Collaboration on grid-related activities such as participation on grid events, and informal inquiries/consultations; European Union-Asia Grid (EUAsiaGrid) Project
	National Telehealth Centre/Philippine (ASEAN HQ)	Informal collaboration on open source and open standards, promotion, and training
	Philippine counterpart (DOST)	S&T Information Exchange through the conduct of/attendance to conferences, S&T exhibition, and collaborative activities between member-countries
	Singapore (APAN secretariat c/o SingAREN)	S&T Information Exchange re: high performance computing through the conduct of/attendance to conferences, S&T exhibition, and collaborative activities between member-countries

# MFO Data

INSTITUTION	LOCATION/COUNTRY	NATURE /DESCRIPTION OF SCIENTIFIC LINKAGES
Center for High Performance Computing a Simica Grid Computing Centre (ASGC)	Taiwan	S&T Information Exchange through attendance to trainings S&T Information Exchange re: high performance computing through the conduct of/attendance to conferences, S&T exhibition, and collaborative activities between member-countries

## 10. EXTERNAL RESOURCES GENERATED

NAME OF INSTITUTION	TITLE/DESCRIPTION OF ASSISTANCE	VALUE OF ASSISTANCE FOR 2010 (IN PESOS)
	Funding support for the project "Infrastructure and Connectivity Component – eDOST-INFRA: Upgrading of DOST ICT Infrastructure and Interconnectivity Network"	23,489,476
	Funding support for the project "Information Systems Component – eDOST-INFOSYS: Upgrading and Development of DOST Information Systems"	4,568,603
	Funding support for the project "e-DOST- Open Standards: Program and Change Management and Implementation of Open Standards to DOST"	1,231,318
	Funding support for the project "Philippine Real-time Environment Data Acquisition and Interpretation for Climate-related Tragedy (PREDICT) Prevention and Mitigation"	2,571,309
	Funding support for the project "Boosting Grid Computing Using Reconfigurable Hardware Technology"	8,589,822
	Funding support for the project "Boosting Social and Technological Capabilities for Bioinformatics Research"	
	Funding support for the project "Upgrading of Facilities for the DOST RDIs in Support of R&D and S&T Services"	
	Funding support for the project "Establishment of DOST-PEZA Open Technology Business Incubator"	2,279,098
	Funding support for the project "Dev't & Commercialization of a Locally Designed Digital Moisture Meter for Bamboo and Other Non-Timber Forest Products"	196,959
	Funding support for the project "Development of Field Monitoring System"	5,750,884
	Funding support for the project "Development of Hybrid Weather Monitoring System and Production of Weather and Rain Automated Stations"	1,745,545
	Research Study on Low-Cost Computing Solutions for Primary Education-Phase I	3,500
National Government)	Funds for automatic/continuing appropriations, miscellaneous personnel benefits (MPBF), Fund 171	44,331,387
thru Development Army of the Philippines)	Knowledge Networking Towards Enterprising Agricultural Communities (K-AGRINET): e-Farm & e-Consortia	947,151
INET Partner Institutions	PREGINET services/subscription fees	14,859,944
as individuals/institutions	Technology Commercialization of GSM Data Terminal Kit and Bayanihan Linux	105,345
rnment/Private/Academic ations	Fees from trainings conducted	875,322
as individuals/institutions	Rental fees, interest, refunds, etc.	164,779
	Fabrication/Production of NSTW 2010 ASTI exhibit materials/fixtures	50,000
	Implementation of Committee on Physical and ICT Logistics Committee Activities for the CY 2010 NSTW	83,000

Three Dimensional	NOC
Asia-Pacific Advanced Network	NTHC
Asia Pacific Network Information Centre	ODF
Association of South East Asian Nations	OS
Academia Sinica Grid Computing Center	PAGASA
Advanced Science and Technology Institute	PBS
Automated Weather Stations	PEZA
Commission on Information & Communications Technology	PGH
Capital Outlay	PHIVOLC
Collaboration for Network-eNabled Education, Culture, Technology and Sciences	PNRI
Computer Software Division	PREDICT
DOST Clients/Partners Information System	PREGINE
DOST Facilities and Equipment Information System	PSCIGRI
Department of Science and Technology	PSTCS
DOST Autonomous Region in Muslim Mindanao	PSTHRIS
DOST Scholarships Online Information System	R&D
Digital Wood Moisture Meter	RDIS
European Commission	REN
Upgrading and Development of DOST Information Systems	ROS
Upgrading of DOST ICT Infrastructure and Interconnectivity Network	S&T
rogram & Change Management and Implementation of Open standards to DOST	SEA
ffective Flood Control Operation System	SCMIT
enabling Grids for e-Science	SEACOOP
owards a Common e-Science Infrastructure with the European and sian Grids	SEALING
armers Information and Technology Service	SME
ield Monitoring System	SMS
ramework Programme 7	SOI
ield Programmable Gate Array	SPECFEM
orest Products Research and Development Institute	TACIS
lobal Systems for Mobile Communication	TEIN 3
ard Disk Drive	TESDA
igh Performance Computing	UNESCO
formation and Communications Technology	UNTL
ternet Protocol version 4	UP
ternet Protocol version 6	UP NIGS
pan Aerospace Exploration Agency	UPLB BIC
owledge Networking Towards Enterprising Agricultural Communities	UPV
-Farm and e-Consortia	USB
owledge Management Division	VOIP
s Baños	VSAT
ight Emitting Diode	WINDS
iquid Crystal Display	
istry of Agriculture, Forestry and Fisheries Information Network	
ajor Final Outputs	
ational Contact Point	
ational Capital Region	

# Glossary

Network Operations Center  
National Telehealth Center  
Open Document Format  
Operating System  
Philippine Atmospheric, Geophysical, and Astronomical Services  
Administration  
Boosting Social and Technological Capabilities for Bioinformatics  
Research  
Philippine Economic Zone Authority  
Philippine General Hospital  
Philippine Institute of Volcanology and Seismology  
Philippine Nuclear Research Institute  
Philippine Real-time Environment Data Acquisition and Interpretation  
for Climate-related Tragedy  
Philippine Research, Education, and Government Information Network  
Philippine e-Science Grid  
Provincial Science and Technology Centers  
Philippine S&T Human Resource Information System  
Research and Development  
Research and Development Institutes  
Research and Education Network  
Regional Offices  
Science and Technology  
Southeast Asia  
ASEAN Sub-Committee on Microelectronics and Information  
Technology  
Further Developing Strategic Science and Technology Cooperation  
with Southeast Asia on Information and Communications Technology  
Support to Policy Dialogues and Strengthening with Southeast Asia  
Small and Medium Enterprises  
Short Message Service  
School over the Internet  
Spectral Finite Element Method 3D  
Tests Analyses and Calibration Information System for DOST  
Trans Eurasia Information Network 3  
Technical Education and Skills Authority  
United Nations Educational, Scientific, and Cultural Organization  
National University of Timor-Leste  
University of the Philippines  
University of the Philippines National Institute of Geological Sciences  
UP Los Baños National Institute of Molecular Technology and  
Biotechnology  
University of the Philippines Visayas  
Universal Serial Bus  
Voice over Internet Protocol  
Very Small Aperture Terminal  
Multicast Experiment using the Wideband InterNetworking  
Engineering and Demonstration Satellite Project

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